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1982

**Census of  
Manufactures**

MC82-I-38B

INDUSTRY SERIES

**Medical Instruments;  
Ophthalmic Goods; Photographic  
Equipment; Clocks, Watches,  
and Watchcases**

Industries 3841, 3842, 3843, 3851, 3861, and 3873



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The publications  
from the 1982 Economic and  
Agriculture Censuses are dedicated  
to the memory of Shirley Kallek,  
Associate Director for Economic Fields.  
During her career at the Bureau of the  
Census (1955 to 1983), she continually  
directed efforts to improve  
the timeliness and accuracy of  
economic statistics.

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# 1982 Census of Manufactures

MC82-I-38B

INDUSTRY SERIES

## Medical Instruments; Ophthalmic Goods; Photographic Equipment; Clocks, Watches, and Watchcases

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- 3841 Surgical and Medical Instruments
- 3842 Surgical Appliances and Supplies
- 3843 Dental Equipment and Supplies
- 3851 Ophthalmic Goods
- 3861 Photographic Equipment and Supplies
- 3873 Watches, Clocks, and Watchcases

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Issued March 1985



**U.S. Department of Commerce**  
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Clarence J. Brown, Deputy Secretary  
Sidney Jones, Under Secretary for  
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INDUSTRY DIVISION  
Gaylord E. Worden, Chief

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# INTRODUCTION

## ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications<sup>1</sup> (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the

Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

## USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

## AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

# CENSUS OF MANUFACTURES

## General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

## Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.<sup>1</sup> This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

## IV INTRODUCTION

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

## Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

## Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

## Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

### 1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excused from filing reports. Selection of these small

establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

## 2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

**a. ASM sample establishments**—This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll,

and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

**b. Large and medium establishments (non-ASM)**—Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

**c. Small single-unit establishments (non-ASM)**—This group consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same

data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

## Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

## Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450

industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the

composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

## Value of Shipments for the Industry Compared With Value of Product Shipments

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

## CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

## MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

## SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

## ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- pt. Part.
- r Revised.
- SIC Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

# Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

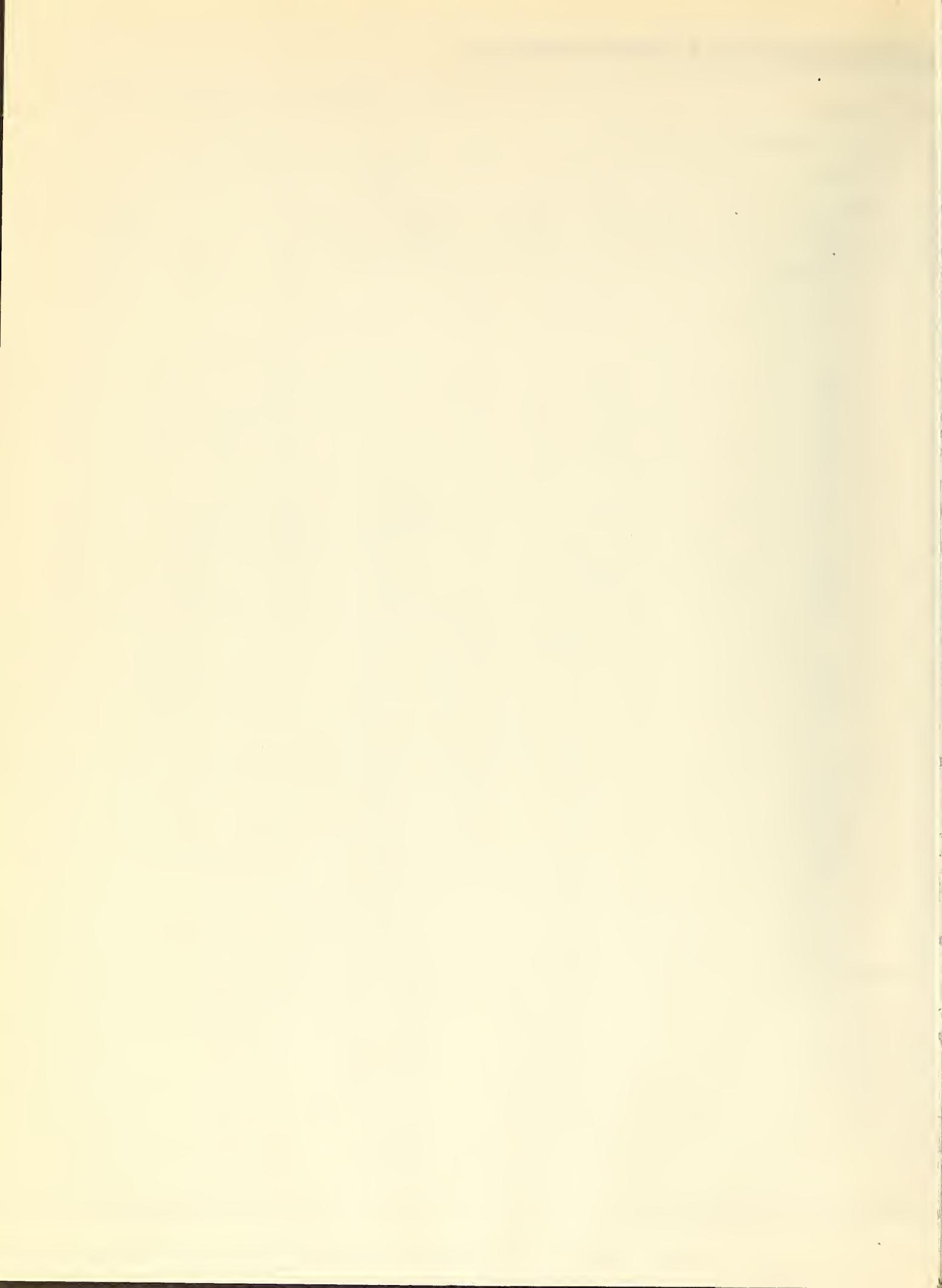
	Item	Four-digit industry statistics		
		Historical	Operating ratios*	By geographic area
1	Number of companies . . . . .	1a		
2	Number of manufacturing establishments . . . . .	1a		2
	Employment and payroll:			
3	Number of employees . . . . .	1a	1b	2
4	Payroll . . . . .	1a	1b	2
5	Supplemental labor costs . . . . .			
6	Production workers . . . . .	1a	1b	2
7	Production-worker hours . . . . .	1a	1b	2
8	Production-worker wages . . . . .	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit) . . . . .	1a	1b	2
10	Product class shipments (five-digit) . . . . .			
11	Product shipments (seven-digit) . . . . .			
12	Value added by manufacture . . . . .	1a	1b	2
13	Cost of materials . . . . .	1a	1b	2
14	Fuels and electric energy . . . . .			
15	Materials consumed by kind . . . . .			
	Inventories:			
16	Total, end of year . . . . .	1a		
17	By method of valuation . . . . .			
18	By stage of fabrication . . . . .			
	Capital expenditures, assets, rental payments, and purchased services:			
19	New capital expenditures . . . . .	1a		2
20	Used plant and equipment expenditures . . . . .			
21	Gross assets . . . . .			
22	Depreciation . . . . .			
23	Retirements of buildings and machinery . . . . .			
24	Rental payments . . . . .			
25	Purchased services . . . . .			
	Ratios:			
26	Specialization . . . . .	1a		
27	Coverage . . . . .	1a		

\*Number of companies with shipments of over \$100 thousand.

\*\*Detailed information shown.

# in This Report by Table Number

Four-digit industry statistics—Con.				Five-digit product class and seven-digit product statistics				
Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class	
3a **3a	4	5a			*6a			1 2
3a 3a **3d **3a **3a 3a	4 4 4 4 4	5a 5a 5a 5a 5a						3 4 5 6 7 8
3a	4	5a		5b, 5c 5b, 5c	6a 6a	6b	6c	9 10 11
3a **3a 3a, 3d	4 4	5a 5a	7					12 13 14 15
3b, 3c 3b, 3c 3b	4							16 17 18
**3a, **3d **3a, **3d **3d **3d **3d **3d **3d **3d	4	5a						19 20 21 22 23 24 25
3a 3a				5b 5b				26 27



# Medical Instruments; Ophthalmic Goods; Photographic Equipment; Clocks, Watches, and Watchcases

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# DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

## MEDICAL INSTRUMENTS; OPHTHALMIC GOODS; PHOTOGRAPHIC EQUIPMENT, CLOCKS, WATCHES, AND WATCHCASES

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

### SIC Code and Title

3841	Surgical and Medical Instruments
3842	Surgical Appliances and Supplies
3843	Dental Equipment and Supplies
3851	Ophthalmic Goods
3861	Photographic Equipment and Supplies
3873	Watches, Clocks, and Watchcases

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.<sup>1</sup>

## INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS

This industry comprises establishments primarily engaged in the manufacture of medical, surgical, ophthalmic, and veterinary

instruments and apparatus. Establishments primarily engaged in the manufacture of surgical and orthopedic appliances are classified in industry 3842, and electrotherapeutic, electromedical, and X-ray apparatus in industry 3693.

In the 1982 Census of Manufactures, Industry 3841, Surgical and Medical Instruments, recorded employment of 56.9 thousand. The total value of shipments for establishments classified in this industry was \$4,085 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 32 percent above the 43.2 thousand reported in 1977. The leading States in employment in 1982 were California, New York, Utah, and Massachusetts, accounting for approximately 40 percent of the industry's 1982 employment. This represents a shift from 1977 when Utah, California, New York, and Pennsylvania accounted for approximately 50 percent of the industry's employment.

Compared with 1981, employment increased 4 percent. The 1981 data are based on the Bureau's annual survey of manufacturers (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3841 shipped \$3,480 million of products primary to the industry, \$397 million of secondary products, and had \$207 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 90 percent (specialization ratio). In 1977, this specialization ratio was 88 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 80 percent. The products primary to industry 3841, no matter in what industry they were produced, appear in table 6a and aggregate to \$4,272 million in current prices.

The total cost of materials and services used by establishments classified in the surgical and medical instruments industry amounted to \$1,253 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of total value of shipments.

<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

## INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES

This industry comprises establishments primarily engaged in the manufacture of orthopedic, prosthetic, and surgical appliances and supplies; arch supports and other foot appliances; fracture appliances, elastic hosiery, abdominal supporters, braces, and trusses; bandages; surgical gauze and dressings; sutures; adhesive tapes and medicated plasters; and personal safety appliances and equipment. Establishments primarily engaged in the manufacture of surgical and medical instruments are classified in industry 3841.

In the 1982 Census of Manufactures, Industry 3842, Surgical Appliances and Supplies, recorded employment of 68.8 thousand. The total value of shipments for establishments classified in this industry was \$5,667 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 29 percent above the 53.5 thousand reported in 1977. The leading States in employment in 1982 were California, Pennsylvania, New Jersey, and New York, accounting for approximately 41 percent of the industry's 1982 employment. This represents a shift from 1977 when California, New Jersey, Pennsylvania, and Illinois accounted for approximately 40 percent of the industry's employment.

Compared with 1981, employment increased 6 percent. The 1981 data are based on the Bureau's annual survey of manufacturers (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3842 shipped \$4,485 million of products primary to the industry, \$751 million of secondary products, and had \$431 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 86 percent (specialization ratio). In 1977, this specialization ratio was 87 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 85 percent. The products primary to industry 3842, no matter in what industry they were produced, appear in table 6a and aggregate to \$5,019 million in current prices.

The total cost of materials and services used by establishments classified in the surgical appliances and supplies industry amounted to \$2,233 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of total value of shipments.

## INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES

In the 1982 Census of Manufactures, Industry 3843, Dental Equipment and Supplies, recorded employment of 15.5 thousand. The total value of shipments for establishments classified in this industry was \$1,112 million.

This industry comprises establishments primarily engaged in the manufacture of artificial teeth, dental metals, alloys and amalgams, and a wide variety of equipment, instruments, and supplies used by dentists, dental laboratories, and dental colleges. Dental laboratories constructing artificial dentures, bridges, inlays, and other dental restorations on specifications from dentists are classified in industry 8072.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 5 percent below the 16.3 thousand reported in 1977. The leading States in employment in 1982 were California, New York, Pennsylvania, and Illinois, accounting for approximately 50 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 53 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 11 percent. The 1981 data are based on the Bureau's annual survey of manufacturers (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3843 shipped \$943 million of products primary to the industry, \$49 million of secondary products, and had \$120 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 95 percent (specialization ratio). In 1977, this specialization ratio was 92 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 98 percent. The products primary to industry 3843, no matter in what industry they were produced, appear in table 6a and aggregate to \$957 million in current prices.

The total cost of materials and services used by establishments classified in the dental equipment and supplies industry amounted to \$473 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of total value of shipments.

## INDUSTRY 3851, OPHTHALMIC GOODS

This industry comprises establishments primarily engaged in the manufacture of ophthalmic frames, lenses, sunglass lenses, and complete nonprescription sunglasses. Establishments primarily engaged in the manufacture of molded glass blanks are classified in industry 3229; and focus lenses, except ophthalmic, in industry 3832. Establishments primarily engaged in grinding lenses to prescription are classified in trade industries.

In the 1982 Census of Manufactures, Industry 3851, Ophthalmic Goods, recorded employment of 26.3 thousand. The total value of shipments for establishments classified in this industry was \$1,287 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 12 percent below the 30.0 thousand reported in 1977. The leading States in employment in 1982 were New York, Massachusetts, California, and Florida, accounting for approximately 60 percent of the industry's 1982 employment. Data for New York and Massachusetts have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 62 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment increased 2 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3851 shipped \$1,060 million of products primary to the industry, \$110 million of secondary products, and had \$117 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 91 percent (specialization ratio). In 1977, this specialization ratio was 92 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio also was 98 percent. The products primary to industry 3851, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,081 million in current prices.

The total cost of materials and services used by establishments classified in the ophthalmic goods industry amounted to \$388 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of total value of shipments.

## INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES

This industry comprises establishments primarily engaged in the manufacture of photographic apparatus, equipment, parts, attachments, and accessories, such as still and motion picture cameras and projection apparatus; photocopy and microfilm equipment; blueprinting and diazotype (white printing) apparatus and equipment; other photographic equipment; sensitized film, paper, cloth, and plates; and prepared photographic chemicals for use therewith. Establishments primarily engaged in the manufacture of photographic paper stock (unsensitized) and paper mats, mounts, easels, and folders for photographic use are classified in major group 26; photographic lenses in industry 3832; photographic glass in major group 32; chemicals for technical purposes, not specifically prepared and packaged for use in photography, in major group 28; and photographic flash, flood enlarger, and projection lamps in industry 3641.

In the 1982 Census of Manufactures, Industry 3861, Photographic Equipment and Supplies, recorded employment of 119.3 thousand. The total value of shipments for establishments classified in this industry was \$17,038 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 7 percent above the 111.6 thousand reported in 1977. The leading States in employment in 1982 were New York, Colorado, Massachusetts, and Illinois, accounting for approximately 75 percent of the industry's 1982 employment. Data for New York, Colorado, and Massachusetts have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 77 percent of the industry's employment.

Compared with 1981, employment increased 4 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3861 shipped \$14,538 million of products primary to the industry, \$945 million of secondary products, and had \$1,554 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 94 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 95 percent. The products primary to industry 3861, no matter in what industry they were produced, appear in table 6a and aggregate to \$14,990 million in current prices.

The total cost of materials and services used by establishments classified in the photographic equipment and supplies industry amounted to \$5,860 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of total value of shipments.

## INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES

This industry comprises establishments primarily engaged in the manufacture of clocks (including electric), watches, watchcases, mechanisms for clockwork-operated devices, and clock and watch parts. This industry also includes establishments primarily engaged in the assembly of clocks and watches from purchased movements and cases. Establishments primarily engaged in the manufacture of time clocks are classified in industry 3579, glass crystals in industry 3231, and unbreakable crystals in industry 3079.

In the 1982 Census of Manufactures, Industry 3873, Watches, Clocks, and Watchcases, recorded employment of 16.8 thousand. The total value of shipments for establishments classified in this industry was \$1,188 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 47 percent below the 31.5 thousand reported in 1977. The leading States in employment in 1982 were New York, Connecticut, Arkansas,

and Illinois, accounting for approximately 50 percent of the industry's 1982 employment. Data for Connecticut and Arkansas have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 50 percent of the industry's employment.

Compared with 1981, employment decreased 18 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3873 shipped \$1,045 million of products primary to the industry, \$58 million of secondary products, and had \$85 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 95 percent (specialization ratio). In 1977, this specialization ratio was 91 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 95 percent. The products primary to industry 3873, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,122 million in current prices.

The total cost of materials and services used by establishments classified in the watches, clocks, and watchcases industry amounted to \$688 million in current prices. Data for specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year <sup>1</sup>	Com- panies <sup>2</sup> (no.)	All establishments <sup>3</sup>		All employees		Production workers			Value added by manufac- ture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	Ratios		
		Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					Special- ization (per- cent)	Cover- age (per- cent)	
<b>INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS</b>															
1982 Census-----	760	859	312	56.9	999.5	38.5	74.3	517.5	2 884.8	1 252.5	4 084.5	230.2	847.7	90	81
1981 ASM-----	(NA)	(NA)	(NA)	54.6	830.6	35.4	65.8	417.4	2 158.0	1 027.8	3 158.2	183.7	612.7	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	51.3	738.7	33.9	62.9	372.7	1 764.1	959.4	2 697.3	163.4	575.6	(NA)	(NA)	
1979 ASM-----	(NA)	(NA)	49.9	628.0	33.6	62.7	340.4	1 539.8	774.1	2 253.5	142.3	493.2	(NA)	(NA)	
1978 ASM-----	(NA)	(NA)	45.9	537.5	32.3	63.8	291.8	1 370.4	681.0	2 029.9	75.9	419.9	(NA)	(NA)	
1977 Census-----	575	650	237	43.2	490.7	29.2	57.4	260.9	1 212.2	647.0	1 829.4	85.3	360.3	88	80
1976 ASM-----	(NA)	(NA)	(NA)	42.8	497.3	27.5	53.1	240.7	1 138.0	679.3	1 799.5	59.5	397.0	(NA)	(NA)
1975 ASM-----	(NA)	(NA)	40.1	430.3	26.1	49.1	206.4	954.3	567.4	1 517.4	83.8	368.2	(NA)	(NA)	
1974 ASM-----	(NA)	(NA)	39.8	393.4	27.7	52.0	199.8	874.6	520.8	1 354.8	79.8	338.1	(NA)	(NA)	
1973 ASM-----	(NA)	(NA)	36.4	305.9	26.1	51.0	173.4	715.6	378.8	1 079.5	60.4	223.7	(NA)	(NA)	
1972 Census-----	449	506	199	34.5	282.4	24.3	48.0	161.1	630.0	347.9	961.8	42.0	203.6	90	82
1971 ASM-----	(NA)	(NA)	(NA)	28.3	219.6	20.3	40.4	120.7	520.7	276.2	769.6	26.0	180.7	(NA)	(NA)
1970 ASM-----	(NA)	(NA)	25.4	185.1	18.4	36.6	98.8	390.2	220.4	607.9	29.5	142.9	(NA)	(NA)	
1969 ASM-----	(NA)	(NA)	25.8	178.1	19.0	38.0	105.4	383.5	235.1	605.4	27.6	132.7	(NA)	(NA)	
1968 ASM-----	(NA)	(NA)	23.7	152.4	17.5	34.9	88.8	338.7	202.8	529.2	17.9	113.8	(NA)	(NA)	
1967 Census-----	298	321	138	22.0	139.6	16.4	32.8	83.5	297.4	102.1	475.4	18.5	101.6	91	69
<b>INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES</b>															
1982 Census-----	1 224	1 367	452	68.8	1 211.1	46.1	87.8	633.1	3 450.8	2 233.1	5 667.1	187.7	1 106.7	86	89
1981 ASM-----	(NA)	(NA)	(NA)	64.9	1 061.8	44.0	85.8	573.6	2 855.0	1 914.3	4 733.9	190.0	860.1	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	61.8	917.6	41.9	79.7	490.3	2 313.2	1 595.2	3 860.5	118.0	766.9	(NA)	(NA)	
1979 ASM-----	(NA)	(NA)	58.7	794.3	39.8	76.1	435.1	2 144.5	1 350.9	3 443.4	99.1	666.7	(NA)	(NA)	
1978 ASM-----	(NA)	(NA)	58.6	716.9	40.0	75.1	396.8	1 803.5	1 169.3	2 934.4	92.2	562.4	(NA)	(NA)	
1977 Census-----	1 016	1 153	321	53.5	618.8	36.5	69.9	342.4	1 586.4	1 038.9	2 588.2	67.4	503.3	87	85
1976 ASM-----	(NA)	(NA)	(NA)	52.8	555.4	36.6	68.7	313.5	1 383.4	901.8	2 236.9	76.0	471.0	(NA)	(NA)
1975 ASM-----	(NA)	(NA)	54.3	514.6	38.0	68.5	289.1	1 286.6	805.5	2 089.7	73.8	420.4	(NA)	(NA)	
1974 ASM-----	(NA)	(NA)	50.5	452.7	35.2	66.4	258.6	1 061.7	764.8	1 795.4	56.3	392.8	(NA)	(NA)	
1973 ASM-----	(NA)	(NA)	46.0	409.5	31.4	61.0	222.4	1 035.6	625.0	1 615.4	41.6	326.5	(NA)	(NA)	
1972 Census-----	780	872	256	43.9	365.3	29.8	58.1	197.8	929.0	535.2	1 453.5	47.5	265.6	79	90
1971 ASM-----	(NA)	(NA)	(NA)	40.2	319.4	27.4	51.9	166.4	834.6	448.6	1 273.5	36.4	235.8	(NA)	(NA)
1970 ASM-----	(NA)	(NA)	41.2	306.1	28.7	54.1	160.8	770.4	448.5	1 204.9	30.3	228.8	(NA)	(NA)	
1969 ASM-----	(NA)	(NA)	44.5	308.1	30.8	60.0	172.7	772.5	465.6	1 224.3	32.8	220.3	(NA)	(NA)	
1968 ASM-----	(NA)	(NA)	40.7	272.9	28.3	55.0	153.1	669.4	392.0	1 049.3	29.5	184.6	(NA)	(NA)	
1967 Census-----	755	811	211	35.2	220.3	24.6	48.0	125.7	527.2	324.5	837.9	30.5	154.0	80	86
<b>INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES</b>															
1982 Census-----	438	485	131	15.5	281.3	9.8	18.8	132.0	642.8	473.3	1 111.7	21.6	271.2	95	99
1981 ASM-----	(NA)	(NA)	(NA)	17.4	298.8	11.4	21.6	141.8	685.6	644.1	1 313.7	19.5	247.1	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	16.7	264.6	11.0	20.9	124.5	613.5	652.6	1 251.5	28.6	232.3	(NA)	(NA)	
1979 ASM-----	(NA)	(NA)	16.2	234.6	10.7	20.7	115.6	532.7	558.8	1 079.6	29.2	204.1	(NA)	(NA)	
1978 ASM-----	(NA)	(NA)	17.4	225.0	11.2	21.8	116.7	491.6	416.6	909.4	21.5	199.5	(NA)	(NA)	
1977 Census-----	507	550	119	16.3	203.3	10.7	21.2	104.8	458.6	339.7	786.7	16.2	174.1	92	98
1976 ASM-----	(NA)	(NA)	(NA)	15.3	195.4	10.9	21.6	107.8	435.2	310.9	729.3	17.3	177.2	(NA)	(NA)
1975 ASM-----	(NA)	(NA)	14.6	165.3	10.1	20.0	89.0	380.0	298.4	671.6	12.5	160.8	(NA)	(NA)	
1974 ASM-----	(NA)	(NA)	15.1	150.4	11.2	21.1	87.1	380.4	287.6	649.0	14.9	159.9	(NA)	(NA)	
1973 ASM-----	(NA)	(NA)	13.5	124.5	9.2	17.6	64.4	282.1	200.3	467.6	14.5	107.7	(NA)	(NA)	
1972 Census-----	385	429	107	12.4	110.0	8.5	16.6	58.3	262.3	159.8	409.2	14.9	91.9	93	94
1971 ASM-----	(NA)	(NA)	(NA)	10.5	83.4	7.5	14.4	47.7	173.4	108.8	284.4	9.4	63.5	(NA)	(NA)
1970 ASM-----	(NA)	(NA)	11.0	82.8	7.8	15.3	45.1	171.0	103.1	274.2	8.3	65.7	(NA)	(NA)	
1969 ASM-----	(NA)	(NA)	10.7	74.1	7.4	14.2	40.8	172.0	102.9	265.0	8.7	63.9	(NA)	(NA)	
1968 ASM-----	(NA)	(NA)	10.6	71.9	7.6	14.8	40.2	160.4	98.4	251.0	8.1	54.0	(NA)	(NA)	
1967 Census-----	314	334	76	10.2	67.4	7.3	14.3	38.3	141.0	82.8	220.5	4.5	45.9	94	94
<b>INDUSTRY 3851, OPHTHALMIC GOODS</b>															
1982 Census-----	389	409	123	26.3	416.9	17.3	35.1	215.2	886.5	388.0	1 287.2	41.6	328.0	91	98
1981 ASM-----	(NA)	(NA)	(NA)	26.4	387.2	18.7	37.3	215.7	862.8	402.1	1 263.2	28.3	302.6	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	29.4	386.1	20.8	41.3	221.1	839.0	398.6	1 211.9	25.7	303.6	(NA)	(NA)	
1979 ASM-----	(NA)	(NA)	29.1	343.3	21.3	41.8	205.3	757.1	363.4	1 102.7	37.5	269.4	(NA)	(NA)	
1978 ASM-----	(NA)	(NA)	31.1	353.8	22.5	44.5	209.7	769.6	376.0	1 132.5	40.6	269.7	(NA)	(NA)	
1977 Census-----	593	634	155	30.0	314.1	21.7	43.1	188.4	656.2	331.1	971.8	44.1	244.9	92	98
1976 ASM-----	(NA)	(NA)	(NA)	28.1	275.9	21.0	40.2	169.2	588.4	279.7	851.6	27.6	190.6	(NA)	(NA)
1975 ASM-----	(NA)	(NA)	27.0	247.5	20.3	38.7	157.3	477.9	254.5	752.8	14.9	173.2	(NA)	(NA)	
1974 ASM-----	(NA)	(NA)	28.6	228.8	22.2	43.0	164.3	494.8	240.5	717.3	14.0	202.2	(NA)	(NA)	
1973 ASM-----	(NA)	(NA)	26.7	203.8	21.2	41.4	132.0	459.3	202.5	627.1	24.8	170.5	(NA)	(NA)	
1972 Census-----	445	499	125	26.6	183.4	20.5	39.8	129.9	416.3	180.1	568.3	17.4	160.0	87	96
1971 ASM-----	(NA)	(NA)	(NA)	28.0	183.3	21.3	40.4	124.4	401.7	176.6	565.2	15.7	146.1	(NA)	(NA)
1970 ASM-----	(NA)	(NA)	27.1	170.7	21.2	40.8	120.6	359.7	161.2	518.8	21.3	126.2	(NA)	(NA)	
1969 ASM-----	(NA)	(NA)	24.5	152.9	19.7	39.1	112.7	334.9	151.5	473.9	13.2	113.2	(NA)	(NA)	
1968 ASM-----	(NA)	(NA)	24.0	142.4	19.3	38.0	101.7	298.6	135.3	434.3	9.3	97.8	(NA)	(NA)	
1967 Census-----	432	461	142	25.6	143.4	20.8	41.1	103.4	286.4	144.1	426.0	14.5	97.8	88	95
<b>INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>															
1982 Census-----	723	795	289	119.3	3 193.1	64.1	123.7	1 457.2	10 859.5	5 859.7	17 037.5	752.6	2 601.4	94	97
1981 ASM-----	(NA)	(NA)	(NA)	114.2	2 888.0	62.7	124.4	1 331.9	11 199.2	5 902.3	16 927.3	771.9	2 386.1	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	114.2	2 559.											

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year <sup>1</sup>	Com- panies <sup>2</sup> (no.)	All establishments <sup>3</sup>		All employees		Production workers			Value added by manufac- ture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expendi- tures (million dollars)	End-of- year inven- tories <sup>4</sup> (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Spec- cial- ization (per- cent)	Cover- age (per- cent)
<b>INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES—Con.</b>															
1972 Census-----	554	627	225	96.0	1 119.7	56.0	107.0	545.8	4 087.9	1 487.9	5 623.9	202.9	751.1	95	96
1971 ASM-----	(NA)	(NA)	(NA)	88.2	953.9	49.3	87.7	436.3	3 488.0	1 233.6	4 709.7	187.0	671.2	(NA)	(NA)
1970 ASM-----	(NA)	(NA)	(NA)	92.5	952.5	51.4	96.9	430.5	3 187.3	1 267.9	4 413.5	219.8	659.6	(NA)	(NA)
1969 ASM-----	(NA)	(NA)	(NA)	95.9	937.0	54.7	106.7	432.9	2 873.5	1 472.1	4 375.3	192.2	544.3	(NA)	(NA)
1968 ASM-----	(NA)	(NA)	(NA)	91.5	832.9	52.4	102.8	395.1	2 810.5	1 214.1	4 008.7	212.7	560.7	(NA)	(NA)
1967 Census-----	505	557	214	94.9	820.2	56.2	112.1	401.3	2 480.7	1 203.3	3 664.5	217.9	568.6	95	97
<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES</b>															
1982 Census-----	227	237	87	16.8	248.1	12.3	22.4	150.2	483.5	688.2	1 187.6	14.6	281.0	95	93
1981 ASM-----	(NA)	(NA)	(NA)	20.5	296.5	15.2	29.2	177.7	627.7	804.1	1 417.7	17.4	313.3	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	(NA)	23.0	290.6	17.3	33.0	180.6	663.5	880.9	1 511.6	17.6	313.4	(NA)	(NA)
1979 ASM-----	(NA)	(NA)	(NA)	27.4	309.3	21.0	40.3	197.4	672.2	930.2	1 592.0	23.6	299.0	(NA)	(NA)
1978 ASM-----	(NA)	(NA)	(NA)	34.9	376.3	26.8	53.1	233.1	788.0	1 040.2	1 802.9	540.9	328.6	(NA)	(NA)
1977 Census-----	283	302	112	31.5	316.6	24.0	46.3	199.4	684.5	912.4	1 594.7	23.2	271.7	91	95
1976 ASM-----	(NA)	(NA)	(NA)	33.1	317.6	25.8	49.5	204.8	743.4	785.1	1 512.8	26.1	278.4	(NA)	(NA)
1975 ASM-----	(NA)	(NA)	(NA)	32.1	287.3	24.6	47.1	178.7	580.3	613.3	1 212.5	16.1	254.4	(NA)	(NA)
1974 ASM-----	(NA)	(NA)	(NA)	35.3	292.2	28.2	53.5	193.4	585.6	577.2	1 153.7	17.0	280.1	(NA)	(NA)
1973 ASM-----	(NA)	(NA)	(NA)	33.5	259.4	27.1	52.3	174.6	546.1	538.1	1 053.3	21.6	235.9	(NA)	(NA)
1972 Census-----	184	202	99	30.8	230.3	24.7	47.6	153.8	466.0	482.0	937.2	18.8	187.1	92	94
1971 ASM-----	(NA)	(NA)	(NA)	32.3	224.4	24.6	47.8	142.3	464.5	442.7	906.8	16.8	195.0	(NA)	1
1970 ASM-----	(NA)	(NA)	(NA)	35.0	231.9	26.4	50.2	141.4	469.0	429.7	888.8	17.9	194.9	(NA)	(NA)
1969 ASM-----	(NA)	(NA)	(NA)	39.1	243.6	30.3	59.2	157.9	523.6	470.6	998.7	12.2	183.4	(NA)	(NA)
1968 ASM-----	(NA)	(NA)	(NA)	38.9	229.8	30.7	59.7	153.1	473.8	470.4	946.5	11.1	182.9	(NA)	(NA)
1967 Census-----	198	223	103	35.2	209.0	27.6	55.2	139.5	392.9	417.5	802.1	10.4	185.1	84	91

<sup>1</sup>In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during year.

<sup>4</sup>Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

Industries	End-of-1981 inventories (million dollars)	End-of-1982 inventories (million dollars)	1982 value added by manufacture (million dollars)
Industry 3841, Surgical and medical instruments -----	756.9	809.2	2 879.6
Industry 3842, Surgical appliances and supplies -----	947.4	950.6	3 445.0
Industry 3843, Dental equipment and supplies -----	229.1	233.1	644.1
Industry 3851, Ophthalmic goods -----	318.1	300.0	866.8
Industry 3861, Photographic equipment and supplies -	2 181.2	1 970.3	11 035.7
Industry 3873, Watches, clocks, and watchcases -----	290.9	270.1	466.4

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

<sup>a</sup>Estimate for new capital expenditures has associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
<b>INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS</b>									
1982 Census-----	17 566	68	1 930	6.97	31	55	50 699	35	38.83
1981 ASM-----	15 212	65	1 859	6.34	33	59	39 524	38	32.80
1980 ASM-----	14 400	66	1 855	5.93	36	63	34 388	42	28.05
1979 ASM-----	12 585	67	1 866	5.43	34	62	30 858	41	24.56
1978 ASM-----	11 710	70	1 975	4.57	34	60	29 856	39	21.48
1977 Census-----	11 359	68	1 966	4.55	35	62	28 060	41	21.12
1976 ASM-----	11 619	64	1 931	4.53	38	65	26 589	44	21.43
1975 ASM-----	10 731	65	1 881	4.20	37	66	23 798	45	19.44
1974 ASM-----	9 884	70	1 877	3.84	38	67	21 975	45	16.82
1973 ASM-----	8 404	72	1 954	3.40	35	63	19 659	43	14.03
1972 Census-----	8 186	70	1 975	3.36	36	66	18 261	45	13.13
1971 ASM-----	7 760	72	1 990	2.99	36	64	18 399	42	12.89
1970 ASM-----	7 287	72	1 989	2.70	36	67	15 362	47	10.66
1969 ASM-----	6 903	74	2 000	2.77	39	68	14 864	46	10.09
1968 ASM-----	6 430	74	1 994	2.54	38	67	14 291	45	9.70
1967 Census-----	6 345	75	2 000	2.55	21	51	13 518	47	9.07

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
<b>INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES</b>									
1982 Census	17 603	67	1 905	7.21	39	61	50 157	35	39.30
1981 ASM	16 361	68	1 950	6.69	40	63	43 991	37	33.28
1980 ASM	14 848	68	1 902	6.15	41	65	37 430	40	29.02
1979 ASM	13 532	68	1 912	5.72	39	62	36 533	37	28.18
1978 ASM	12 234	68	1 877	5.28	40	64	30 776	40	24.01
1977 Census	11 566	68	1 915	4.90	40	64	29 652	39	22.70
1976 ASM	10 519	69	1 877	4.56	40	65	26 201	40	20.14
1975 ASM	9 477	70	1 803	4.22	39	63	23 694	40	18.78
1974 ASM	8 964	70	1 886	3.89	43	68	21 024	43	15.99
1973 ASM	8 902	68	1 943	3.65	39	64	22 513	40	16.98
1972 Census	8 321	68	1 950	3.40	37	62	21 162	39	15.99
1971 ASM	7 945	68	1 894	3.21	35	60	20 761	38	16.08
1970 ASM	7 430	70	1 885	2.97	37	63	18 699	40	14.24
1969 ASM	6 924	69	1 948	2.88	38	63	17 360	40	12.88
1968 ASM	6 705	70	1 943	2.78	37	63	16 447	41	12.17
1967 Census	6 259	70	1 951	2.62	39	65	14 977	42	10.98
<b>INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES</b>									
1982 Census	18 148	63	1 918	7.02	43	68	41 471	44	34.19
1981 ASM	16 713	66	1 895	6.56	49	71	39 402	42	31.74
1980 ASM	15 844	66	1 900	5.96	52	73	36 737	43	29.35
1979 ASM	14 481	66	1 935	5.58	52	73	32 883	44	25.73
1978 ASM	12 931	64	1 946	5.35	46	71	28 253	46	22.55
1977 Census	12 472	66	1 981	4.94	43	69	28 135	44	21.63
1976 ASM	12 771	71	1 982	4.99	43	69	28 444	45	20.15
1975 ASM	11 322	69	1 980	4.45	44	69	26 027	43	19.00
1974 ASM	10 199	74	1 884	4.13	44	68	25 192	40	18.03
1973 ASM	9 222	68	1 913	3.66	43	69	20 896	44	16.03
1972 Census	8 871	69	1 953	3.51	39	66	21 153	42	15.80
1971 ASM	7 943	71	1 920	3.31	38	68	16 514	48	12.04
1970 ASM	7 527	71	1 962	2.95	38	68	15 545	48	11.18
1969 ASM	6 925	69	1 919	2.87	39	67	16 075	43	12.11
1968 ASM	6 783	72	1 947	2.72	39	68	15 132	45	10.84
1967 Census	6 608	72	1 959	2.68	38	68	13 824	48	9.86
<b>INDUSTRY 3851, OPHTHALMIC GOODS</b>									
1982 Census	15 852	66	2 029	6.13	30	63	33 707	47	25.26
1981 ASM	14 667	71	1 995	5.78	32	62	32 682	45	23.13
1980 ASM	13 133	71	1 986	5.35	33	65	28 537	46	20.31
1979 ASM	11 797	73	1 962	4.91	33	64	26 017	45	18.11
1978 ASM	11 376	72	1 978	4.71	33	64	24 746	46	17.29
1977 Census	10 470	72	1 986	4.37	34	66	21 873	48	15.23
1976 ASM	9 819	75	1 914	4.21	33	65	20 940	47	14.64
1975 ASM	9 167	75	1 906	4.06	34	67	17 700	52	12.35
1974 ASM	8 000	78	1 937	3.82	34	65	17 301	46	11.51
1973 ASM	7 633	79	1 953	3.19	32	65	17 202	44	11.09
1972 Census	6 895	77	1 941	3.26	32	64	15 650	44	10.46
1971 ASM	6 546	76	1 897	3.08	31	64	14 346	46	9.94
1970 ASM	6 299	78	1 925	2.96	31	64	13 273	47	8.82
1969 ASM	6 241	80	1 985	2.88	32	64	13 669	46	8.57
1968 ASM	5 933	80	1 969	2.68	31	64	12 442	48	7.86
1967 Census	5 602	81	1 976	2.52	34	67	11 188	50	6.97
<b>INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>									
1982 Census	26 765	54	1 930	11.78	34	53	91 027	29	87.79
1981 ASM	25 289	55	1 984	10.71	35	52	98 036	26	90.00
1980 ASM	22 413	55	1 954	9.53	39	55	86 960	26	81.20
1979 ASM	20 186	57	1 916	8.64	35	52	77 236	26	71.18
1978 ASM	18 503	57	1 914	8.00	32	50	69 980	26	63.67
1977 Census	17 006	55	1 935	7.42	33	52	60 294	28	56.40
1976 ASM	16 142	54	1 935	6.91	33	53	56 639	28	53.88
1975 ASM	14 428	54	1 888	6.40	32	51	51 822	28	50.95
1974 ASM	13 162	57	1 927	5.63	34	53	46 731	28	42.19
1973 ASM	12 220	58	1 896	5.37	28	48	46 841	26	42.78
1972 Census	11 664	58	1 911	5.10	26	46	42 582	27	38.20
1971 ASM	10 815	56	1 779	4.97	26	46	39 546	27	39.77
1970 ASM	10 297	56	1 885	4.44	29	50	34 457	30	32.89
1969 ASM	9 771	57	1 951	4.06	34	55	29 964	33	26.93
1968 ASM	9 103	57	1 962	3.84	30	51	30 716	30	27.34
1967 Census	8 643	59	1 995	3.58	33	55	26 140	33	22.13
<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES</b>									
1982 Census	14 768	73	1 821	6.71	58	79	28 780	51	21.58
1981 ASM	14 463	74	1 921	6.09	57	78	30 620	47	21.50
1980 ASM	12 635	75	1 908	5.47	58	78	28 848	44	20.11
1979 ASM	11 288	77	1 919	4.90	58	78	24 533	46	16.68
1978 ASM	10 782	77	1 981	4.39	58	79	22 579	48	14.84
1977 Census	10 051	76	1 929	4.31	57	77	21 730	46	14.78
1976 ASM	9 595	78	1 919	4.14	52	73	22 459	43	15.02
1975 ASM	8 950	77	1 915	3.79	51	74	18 078	50	12.32
1974 ASM	8 278	80	1 897	3.61	50	75	16 589	50	10.95
1973 ASM	7 743	81	1 930	3.34	51	76	16 301	48	10.44

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES—Con.</b>									
1972 Census-----	7 477	80	1 927	3.23	51	76	15 130	49	9.79
1971 ASM-----	6 947	76	1 943	2.98	49	74	14 381	48	9.72
1970 ASM-----	6 626	75	1 902	2.82	48	74	13 400	49	9.34
1969 ASM-----	6 230	77	1 954	2.67	47	72	13 391	47	8.84
1968 ASM-----	5 907	79	1 945	2.56	50	74	12 180	49	7.94
1967 Census-----	5 938	78	2 000	2.53	52	78	11 162	53	7.12

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1982 and 1977

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982										1977			
	All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)	
	E <sup>1</sup>	Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)							
<b>INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS</b>														
United States-----	E1	859	312	56.9	999.5	38.5	74.3	517.5	2 884.8	1 252.5	4 084.5	230.2	43.2	1 212.2
Alabama-----	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Arizona-----	E1	5	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas-----	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California-----	E1	184	52	10.2	203.2	6.2	12.3	85.2	519.8	219.5	731.5	41.5	5.8	158.8
Colorado-----	E3	30	11	1.0	16.9	.6	1.2	6.9	45.0	26.9	72.1	5.7	CC	(D)
Connecticut-----	-	26	16	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	60.2
Florida-----	-	33	11	2.2	33.9	1.7	3.1	19.8	111.0	41.7	147.8	6.9	1.6	46.2
Georgia-----	E4	11	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Illinois-----	E2	49	26	2.7	50.0	1.9	3.7	26.4	112.7	66.8	179.3	5.6	1.3	36.7
Indiana-----	-	29	12	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kansas-----	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Maryland-----	E1	14	3	.4	7.1	.3	.4	3.7	16.9	10.2	26.8	(D)	(NA)	(NA)
Massachusetts-----	E1	56	25	3.2	63.2	1.9	3.6	26.9	146.0	58.3	200.7	7.1	EE	(D)
Michigan-----	-	15	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Minnesota-----	E4	35	12	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	18.6
Missouri-----	-	16	7	1.6	29.5	1.0	1.6	13.9	65.4	33.8	102.8	3.7	1.2	25.8
Nebraska-----	-	6	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New Hampshire-----	E1	7	3	.2	3.0	.1	.2	.9	5.4	3.1	8.3	(D)	(NA)	(NA)
New Jersey-----	E2	52	20	2.3	44.9	1.5	2.8	19.9	109.3	63.9	174.3	6.4	3.4	69.6
New York-----	E1	74	24	5.6	89.8	4.0	8.0	54.8	247.6	104.5	343.6	16.5	4.7	127.2
North Carolina-----	-	5	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Ohio-----	E1	26	11	1.5	25.4	.8	1.6	11.0	59.5	35.4	91.7	5.1	.9	17.9
Oklahoma-----	E4	8	4	.2	3.3	.2	.3	1.8	5.7	2.9	8.6	(D)	AA	(D)
Oregon-----	E3	13	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.6
Pennsylvania-----	E3	37	13	1.9	36.0	1.2	2.5	21.0	76.6	38.1	112.8	4.9	3.8	117.2
Rhode Island-----	-	4	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Carolina-----	-	6	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas-----	E1	44	13	3.0	44.6	2.1	4.0	26.7	151.6	67.6	208.8	9.2	CC	(D)
Utah-----	-	11	4	3.9	59.7	2.6	5.1	27.9	133.9	52.6	188.5	9.4	FF	(D)
Virginia-----	-	4	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Washington-----	E2	19	3	.4	9.0	.2	.4	2.9	24.5	10.5	33.3	(D)	(NA)	(NA)
Wisconsin-----	-	9	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup>	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)	
	E1	Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)							
<b>INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES</b>														
United States	E1	1 367	452	68.8	1 211.1	46.1	87.8	633.1	3 450.8	2 233.1	5 667.1	187.7	53.5	1 586.4
Alabama	E1	16	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Arizona	-	14	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	14.9
California	E2	206	72	9.7	170.4	6.6	12.9	89.7	395.3	205.4	596.2	39.0	6.9	168.5
Colorado	-	25	6	.9	16.9	.5	.9	5.6	41.3	18.9	59.9	(D)	(NA)	(NA)
Connecticut	-	30	17	2.2	33.9	1.6	3.1	20.0	98.3	74.4	169.8	(D)	EE	(D)
Delaware	-	5	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Florida	E3	77	12	1.1	17.3	.7	1.3	8.8	48.2	20.2	68.0	3.6	1.0	27.5
Georgia	-	20	9	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	36.2
Illinois	E1	58	17	3.1	60.0	2.0	3.8	35.2	177.6	92.1	272.7	3.9	4.6	188.5
Indiana	-	31	8	2.3	56.6	1.5	3.4	25.4	225.0	73.5	284.0	7.4	2.0	91.7
Kansas	E6	13	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	4.2
Kentucky	-	13	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	17.7
Maryland	E3	20	5	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E2	53	20	1.9	28.6	1.3	2.4	15.0	71.7	47.2	118.2	3.8	1.5	25.6
Michigan	E2	47	16	1.5	23.3	1.1	1.9	13.7	55.6	41.6	98.0	(D)	1.4	29.2
Minnesota	-	36	14	2.3	38.2	1.6	2.8	19.2	106.3	49.6	153.6	5.6	2.0	33.0
Mississippi	E1	9	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E2	27	12	1.1	15.7	.9	1.6	9.6	35.5	24.1	61.8	2.0	.8	15.3
Nebraska	E6	4	3	.2	2.0	.1	.3	1.3	5.3	2.9	8.2	.5	.2	3.4
New Hampshire	E1	12	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	4.9
New Jersey	E3	52	26	6.7	165.5	3.3	6.4	61.4	410.5	260.8	672.8	17.0	5.6	226.7
New Mexico	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E4	122	34	4.7	86.1	3.0	5.7	41.5	201.4	217.3	418.2	10.1	3.5	79.9
North Carolina	-	30	11	1.4	16.1	1.1	2.0	10.6	46.8	44.8	88.8	1.6	.6	11.9
Ohio	E2	78	32	3.2	49.2	2.3	4.5	30.2	163.6	76.2	243.0	5.4	2.8	61.2
Pennsylvania	E1	78	26	6.9	127.5	3.9	7.1	59.8	306.2	169.9	472.5	20.0	4.9	122.8
Rhode Island	E2	15	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Carolina	-	11	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Dakota	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Tennessee	-	22	12	2.0	33.2	1.2	2.5	15.5	125.7	62.8	185.8	(D)	.8	30.4
Texas	-	70	18	3.4	51.5	2.5	4.6	30.0	231.9	181.5	408.0	8.5	FF	(D)
Utah	E4	12	2	.2	2.2	.1	.2	1.2	4.0	2.9	7.0	.2	.3	4.4
Virginia	E3	18	5	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	3.0
Washington	E4	18	4	.2	3.5	.1	.3	1.9	6.9	5.0	12.0	.3	(NA)	(NA)
West Virginia	-	8	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E1	32	11	1.7	28.7	1.2	2.4	15.9	78.7	58.8	138.6	2.3	1.1	17.7
<b>INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES</b>														
United States	E1	485	131	15.5	281.3	9.8	18.8	132.0	642.8	473.3	1 111.7	21.6	16.3	458.6
Alabama	-	3	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
California	-	110	28	3.1	53.1	2.1	3.8	24.2	153.2	38.5	187.5	5.3	2.8	78.2
Colorado	E2	12	4	.5	9.6	.3	.5	3.6	18.9	5.1	23.8	1.1	CC	(D)
Connecticut	-	8	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Delaware	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Florida	E7	23	4	.2	2.4	.1	.3	1.5	3.8	2.9	6.7	.2	(NA)	(NA)
Illinois	-	37	10	1.2	26.8	.6	1.1	9.1	52.4	41.7	93.5	2.2	1.6	49.5
Indiana	-	7	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	E2	11	3	.2	3.0	.1	.2	2.0	3.7	2.7	6.3	.1	.2	4.1
Michigan	-	12	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Missouri	E1	14	5	.3	4.3	.2	.4	2.2	8.4	6.2	14.8	.7	.2	4.7
New Jersey	E1	30	9	1.1	21.2	.6	1.2	9.2	48.7	40.6	87.3	1.0	1.5	53.0
New York	E1	50	19	2.0	35.4	1.2	2.2	16.9	80.0	140.3	220.2	2.6	2.1	66.3
North Carolina	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio	-	14	4	.5	9.1	.3	.5	4.0	13.2	15.2	30.8	.4	.6	12.0
Oregon	E1	13	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	18.5
Pennsylvania	-	26	11	1.5	25.8	1.1	2.2	13.6	58.4	39.5	98.6	2.0	2.1	45.1
Wisconsin	-	5	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
<b>INDUSTRY 3851, OPHTHALMIC GOODS</b>														
United States	E1	409	123	26.3	416.9	17.3	35.1	215.2	886.5	388.0	1 287.2	41.6	30.0	656.2
Arizona	-	10	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	73	19	3.1	52.5	1.9	3.7	27.3	102.4	32.5	137.8	5.8	2.1	46.7
Florida	E5	27	12	1.8	27.8	1.5	3.2	19.8	48.1	26.1	73.1	4.2	2.2	39.2
Georgia	E1	5	2	.4	9.9	.2	.4	2.1	6.9	2.9	11.0	(D)	(NA)	(NA)
Illinois	E3	25	6	.7	11.8	.4	1.0	4.7	21.6	6.6	28.4	1.0	1.0	20.5
Maryland	-	5	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts	-	30	13	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	141.5
Minnesota	E1	7	5	.9	10.4	.7	1.2	8.2	35.2	17.6	46.2	.9	1.0	22.5
Missouri	E6	6	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	8.5
New Jersey	-	16	8	.9	12.1	.7	1.3	6.4	22.0	14.5	36.3	.6	1.1	22.2
New York	-	51	17	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	200.9
Oklahoma	-	3	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E8	20	2	.4	7.2	.3	.5	4.5	10.8	6.6	18.3	.3	.6	15.5
Rhode Island	-	7	3	1.0	15.5	.8	1.7	11.1	32.0	15.7	50.4	(D)	EE	(D)
South Carolina	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Texas	E7	23	4	.6	7.6	.4	.9	4.4	15.9	8.4	23.7	.6	.5	12.9
Utah	-	7	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	-	7	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)	
	E <sup>1</sup>	Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)							
<b>INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>														
United States	-	795	289	119.3	3 193.1	64.1	123.7	1 457.2	10 859.5	5 859.7	17 037.5	752.6	111.6	6 728.8
California	E2	159	49	5.2	124.5	2.9	5.8	56.9	314.5	243.3	558.4	25.8	4.5	163.3
Colorado	-	11	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Connecticut	E1	18	11	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	22.0
Delaware	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	18	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Georgia	E9	9	4	.3	8.8	.2	.3	4.5	9.0	4.9	14.0	.6	(NA)	(NA)
Illinois	-	78	29	5.6	124.3	2.3	4.3	39.5	268.3	204.1	477.2	9.2	7.7	172.0
Indiana	-	10	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kansas	E4	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	-	3	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts	-	34	16	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Michigan	E1	14	9	.8	19.2	.6	1.2	12.5	45.2	23.5	70.5	(D)	.5	16.6
Minnesota	E2	16	9	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Missouri	E3	15	3	.3	5.8	.2	.3	3.5	16.2	10.8	27.5	1.5	.2	6.8
Nebraska	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	E1	70	27	5.0	102.3	3.1	6.2	50.9	173.6	276.8	458.2	23.4	5.2	177.0
New York	-	122	48	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	60.8	4 356.2
North Carolina	-	6	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Ohio	E1	21	9	.7	13.5	.5	.9	8.2	30.5	18.4	48.7	.8	.7	21.2
Oklahoma	E1	8	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Oregon	-	10	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	E1	34	8	1.6	37.2	.9	1.8	19.0	192.1	77.5	269.4	7.9	1.2	101.4
Rhode Island	E1	8	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Texas	E6	31	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Virginia	E1	16	4	.5	9.0	.2	.4	3.8	18.3	11.7	29.2	.4	.3	9.6
Washington	E6	9	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2	5.1
West Virginia	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Wisconsin	-	18	9	1.0	15.9	.5	1.0	6.4	38.2	34.4	73.3	1.6	1.1	28.9
<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES</b>														
United States	-	237	87	16.8	248.1	12.3	22.4	150.2	483.5	688.2	1 187.6	14.6	31.5	684.5
Alabama	-	5	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arkansas	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
California	E4	32	8	.4	5.6	.3	.6	3.5	9.8	9.0	19.5	.3	.7	18.4
Connecticut	-	8	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Florida	-	9	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	-	4	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	17	6	1.4	17.6	1.1	1.8	11.0	29.3	36.7	65.8	2.4	3.5	63.8
Indiana	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	11	4	.8	14.0	.7	1.2	10.1	24.6	18.0	43.4	.1	.1	35.7
Michigan	-	9	5	.9	15.4	.6	1.2	8.6	37.0	31.5	70.5	(D)	1.3	
Mississippi	-	4	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New Jersey	-	18	5	.4	5.9	.3	.6	3.5	10.8	7.9	19.1	.2	.9	18.2
New York	E1	56	21	2.8	49.6	1.8	3.3	26.6	57.1	145.2	215.7	1.6	4.8	110.3
North Carolina	-	7	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	-	9	5	.5	8.6	.4	.7	4.7	19.2	29.6	48.9	.2	1.1	16.5
Rhode Island	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Tennessee	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Virginia	-	4	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Wisconsin	-	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)

Note: For qualifications of data, see footnotes on table 1a.

<sup>1</sup>Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during year.

<sup>3</sup>Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

<sup>4</sup>Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

Table 3a. Summary Statistics for the Industry: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)	Surgical appliances and supplies (SIC 3842)	Dental equipment and supplies (SIC 3843)	Ophthalmic goods (SIC 3851)	Photographic equipment and supplies (SIC 3861)	Watches, clocks, and watchcases (SIC 3873)
Companies <sup>1</sup> number	760	1 224	438	389	723	227
All establishments <sup>2</sup> do	859	1 367	485	409	795	237
With 1 to 19 employees do	547	915	354	286	506	150
With 20 to 99 employees do	187	299	98	69	197	54
With 100 employees or more do	125	153	33	54	92	33
All employees:						
Average for year 1,000	56.9	68.8	15.5	26.3	119.3	16.8
Annual payroll <sup>3</sup> mil. dol.	999.5	1 211.1	281.3	416.9	3 193.1	248.1
Production workers:						
Average for year 1,000	38.5	46.1	9.8	17.3	64.1	12.3
March do	38.6	47.0	10.0	17.8	63.9	12.5
May do	38.9	46.2	9.9	17.8	64.4	12.3
August do	38.4	45.8	9.8	17.2	65.4	12.5
November do	37.9	45.4	9.4	16.4	62.5	12.1
Hours millions	74.3	87.8	18.8	35.1	123.7	22.4
January to March do	18.8	22.1	4.8	9.0	30.5	5.6
April to June do	18.9	22.3	4.8	9.1	30.6	5.9
July to September do	18.1	21.2	4.5	8.6	31.1	5.4
October to December do	18.5	22.1	4.5	8.3	31.5	5.6
Wages mil. dol.	517.5	633.1	132.0	215.2	1 457.2	150.2
Value added by manufacture <sup>4</sup> do	2 884.8	3 450.8	642.8	886.5	10 859.5	483.5
Cost of materials, etc. <sup>5</sup> do	1 252.5	2 233.1	473.3	388.0	5 859.7	688.2
Materials, parts, containers, etc., consumed do	1 085.5	1 880.1	392.2	305.5	4 997.1	632.5
Resales do	100.3	198.5	64.9	50.6	579.7	39.7
Fuels consumed <sup>6</sup> do	9.0	22.0	2.9	7.9	105.4	3.2
Purchased electric energy <sup>7</sup> do	36.1	40.5	6.8	16.3	78.9	9.6
Contract work do	21.5	92.0	6.4	7.6	98.6	3.2
Value of shipments, including resales do	4 084.5	5 667.1	1 111.7	1 287.2	17 037.5	1 187.6
Value of resales do	182.8	300.4	99.0	101.3	703.5	60.7
Manufacturers' inventories (see tables 3b and 3c)						
Capital expenditures for plant and equipment <sup>8</sup> do	258.2	197.4	22.8	58.4	798.3	15.8
New capital expenditures do	230.2	187.7	21.6	41.6	752.6	14.6
New buildings and other structures do	70.5	49.1	4.8	6.6	109.8	3.0
New machinery and equipment do	159.7	138.6	16.8	35.0	642.8	11.6
Used capital expenditures do	28.0	9.8	1.2	16.8	45.7	1.2
Primary product specialization ratio <sup>9</sup> percent	90	86	95	91	94	95
Coverage ratio <sup>10</sup> do	81	89	99	98	97	93

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Includes establishments with payroll at any time during year.

<sup>3</sup>Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.

<sup>4</sup>Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.

<sup>5</sup>Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.

<sup>6</sup>Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.

<sup>7</sup>Data on quantity of electric energy used for heat and power are included in table 3d.

<sup>8</sup>Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.

<sup>9</sup>Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.

<sup>10</sup>Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)	Surgical appliances and supplies (SIC 3842)	Dental equipment and supplies (SIC 3843)	Ophthalmic goods (SIC 3851)	Photographic equipment and supplies (SIC 3861)	Watches, clocks, and watchcases (SIC 3873)						
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982		
<b>Total inventories<sup>1</sup></b>	<b>788.1</b>	<b>847.7</b>	<b>1 093.3</b>	<b>1 106.7</b>	<b>270.2</b>	<b>271.2</b>	<b>347.1</b>	<b>328.0</b>	<b>3 048.4</b>	<b>2 601.4</b>	<b>306.5</b>	<b>281.0</b>
Detail by method of valuation:												
Subject to LIFO costing <sup>2</sup>	156.2	180.4	478.2	491.7	106.5	102.9	82.3	89.1	1 675.8	1 273.1	52.2	50.8
LIFO reserve	34.5	43.2	165.6	178.5	47.5	46.7	28.3	28.6	870.7	636.7	11.9	11.8
LIFO value	121.7	137.2	312.5	313.2	59.0	56.1	54.1	60.6	805.1	636.4	40.3	39.1
Not subject to LIFO costing	523.9	560.4	443.8	446.4	122.7	128.6	186.9	161.7	1 226.3	1 186.8	224.7	208.0
Valuation method not reported <sup>3</sup>	105.8	104.7	170.1	167.4	41.1	39.7	77.0	76.2	136.2	132.4	29.6	22.2
Amount subject to LIFO reported without associated reserve and value <sup>4</sup>	2.1	2.2	1.2	1.1	—	—	.9	1.0	10.1	9.1	—	—
Detail by stage of fabrication:												
Finished goods	260.5	296.7	423.9	444.3	95.2	98.7	181.1	171.9	634.0	513.0	139.9	132.9
Work in process	226.5	243.1	316.6	313.0	90.0	90.8	101.0	97.6	1 453.4	1 256.1	104.3	95.5
Materials and supplies	301.1	307.9	352.7	349.3	85.1	81.7	64.9	58.5	961.0	832.2	62.3	52.6

<sup>1</sup>Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes.

<sup>2</sup>Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

<sup>3</sup>Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

<sup>4</sup>Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.

**Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)		Surgical appliances and supplies (SIC 3842)		Dental equipment and supplies (SIC 3843)		Ophthalmic goods (SIC 3851)		Photographic equipment and supplies (SIC 3861)		Watches, clocks, and watchcases (SIC 3873)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
<b>Total Inventories</b>	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)
Last-In, First-Out (LIFO) methods	21.3	(X)	44.4	(X)	37.9	(X)	27.2	(X)	48.9	(X)	18.1	(X)
Non-LIFO methods	66.1	(X)	40.3	(X)	47.4	(X)	49.3	(X)	45.6	(X)	74.0	(X)
Cost basis:												
First-In, First-Out (FIFO)	28.3	3.4	18.9	2.1	14.6	2.5	16.6	.7	11.6	.9	47.3	2.2
Average cost	2.5	.5	(S)	(S)	20.4	2.6	4.4	.5	17.6	.5	.5	.1
Specific or actual cost	.9	.3	1.9	.5	(S)	(S)	3.0	.6	1.8	.5	3.6	.5
Standard cost	31.9	4.0	17.9	2.1	11.3	2.0	23.4	.6	14.1	.4	22.4	2.1
Other	1.7	.2	(S)	(S)	(Z)	(Z)	.6	.2	(S)	(S)	.1	(Z)
Market basis:												
Market lower than cost	(S)	(S)	.1	(Z)	(Z)	(Z)	1.2	(Z)	(Z)	(Z)	.1	(Z)
Market always used	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(S)	(S)	(Z)	(Z)	(Z)	(Z)
Valuation method not reported	12.4	(X)	15.1	(X)	14.6	(X)	23.2	(X)	5.1	(X)	7.9	(X)
Amount subject to LIFO reported without associated reserve and value	.3	(X)	.1	(X)	(Z)	(X)	.3	(X)	.3	(X)	(Z)	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

**Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)		Surgical appliances and supplies (SIC 3842)		Dental equipment and supplies (SIC 3843)		Ophthalmic goods (SIC 3851)		Photographic equipment and supplies (SIC 3861)		Watches, clocks, and watchcases (SIC 3873)	
	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)
Supplemental labor costs:												
Total	220.0	2	250.6	2	51.6	4	85.8	2	640.3	1	55.3	2
Legal costs	90.9	5	99.8	1	21.7	4	39.3	1	224.3	1	23.5	2
Voluntary costs	129.0	5	150.8	2	29.9	5	46.5	2	416.1	1	31.8	2
Purchased services:												
Cost of purchased services for the repair of—												
Buildings and other structures	4.6	8	10.4	6	2.3	12	.7	17	27.0	3	1.0	2
Response coverage ratio (percent) <sup>2</sup>	73.0	(X)	72.0	(X)	68.7	(X)	41.7	(X)	90.5	(X)	55.7	(X)
Machinery	12.9	3	17.6	5	3.2	24	4.3	2	59.6	2	3.3	1
Response coverage ratio (percent) <sup>2</sup>	85.5	(X)	69.0	(X)	71.6	(X)	52.5	(X)	90.6	(X)	60.1	(X)
Cost of purchased communication services	14.6	14	16.3	7	5.2	10	11.1	1	36.8	3	3.3	3
Response coverage ratio (percent) <sup>2</sup>	79.1	(X)	72.4	(X)	67.5	(X)	70.8	(X)	91.3	(X)	67.3	(X)
Electric energy used for heat and power:												
Purchased:												
Quantity (million kWh)	671.7	1	704.8	1	100.4	2	264.0	1	458.9	1	148.5	1
Cost	36.1	(X)	40.5	(X)	6.8	(X)	16.3	(X)	78.9	(X)	9.6	(X)
Generated less sold (million kWh)	-	-	(Z)	1	-	-	34.1	1	(D)	1	-	1
Gross book value of depreciable assets:												
Total:												
Beginning of year	1 056.5	4	1 101.0	4	222.2	6	414.0	3	5 880.0	1	172.7	4
New capital expenditures	212.7	11	162.0	8	14.6	12	31.1	8	756.6	3	13.7	8
Used capital expenditures	6.2	5	4.8	7	.4	17	15.4	1	50.7	14	.9	12
Retirements	51.5	4	64.6	19	7.8	7	62.9	4	134.3	13	10.8	7
End of year	1 223.9	3	1 203.3	4	229.3	6	397.7	3	6 553.0	1	176.6	4
Buildings and other structures:												
Beginning of year	355.5	5	387.0	5	76.4	6	118.1	4	1 659.1	3	49.0	3
New capital expenditures	76.6	16	39.4	17	3.1	12	7.0	21	109.8	5	2.9	8
Used capital expenditures	.8	3	3.6	8	(Z)	1	1.8	1	12.7	51	(Z)	43
Retirements	7.6	9	15.8	8	.7	1	21.1	5	17.2	49	2.4	8
End of year	425.3	6	414.1	5	78.8	6	105.8	4	1 764.4	3	49.4	3
Machinery and equipment:												
Beginning of year	700.9	4	714.0	4	145.8	7	295.9	2	4 220.9	1	123.7	5
New capital expenditures	136.2	8	122.7	6	11.5	12	24.1	4	646.8	3	10.8	8
Automobiles, trucks, etc., for highway use	1.6	22	1.8	13	.2	1	.1	1	3.6	8	.1	15
Computers and peripheral data processing equipment	7.1	50	5.9	18	.5	16	1.9	1	44.5	1	.5	14
All other	117.5	7	95.0	8	8.0	15	19.4	5	549.7	3	8.8	9
New machinery and equipment, n.s.k. <sup>3</sup>	10.0	(S)	20.0	(S)	2.8	(S)	2.8	(S)	49.0	(S)	1.4	(S)
Used capital expenditures	5.4	6	1.1	6	.4	19	13.6	1	38.0	2	.9	13
Retirements	43.9	4	48.7	23	7.1	8	41.8	4	117.1	8	8.3	7
End of year	798.6	3	789.2	4	150.5	7	291.9	2	4 788.5	1	127.1	5
Rental payments:												
Total	25.0	10	40.9	7	10.7	8	15.8	3	64.2	4	8.5	5
Buildings and other structures	11.6	11	19.1	13	5.4	16	6.4	6	28.2	8	3.3	10
Machinery and equipment	13.4	11	21.8	5	5.3	9	9.4	3	35.9	3	5.2	4

See footnotes at end of table.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)		Surgical appliances and supplies (SIC 3842)		Dental equipment and supplies (SIC 3843)		Ophthalmic goods (SIC 3851)		Photographic equipment and supplies (SIC 3861)		Watches, clocks, and watchcases (SIC 3873)	
	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)
Depreciation charges during 1982:												
Total	90.6	3	88.9	4	14.7	6	30.5	3	412.5	1	12.3	3
Buildings and other structures	16.0	6	17.6	4	3.3	5	5.8	9	69.5	3	2.1	3
Machinery and equipment	74.6	3	71.3	4	11.4	7	24.6	3	343.1	1	10.2	4

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

<sup>1</sup>For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

<sup>2</sup>Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)

<sup>3</sup>Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

Table 4. Industry Statistics by Employment Size of Establishment: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E <sup>1</sup>	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
<b>INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS</b>												
Total	E1	859	56.9	999.5	38.5	74.3	517.5	2 884.8	1 252.5	4 084.5	230.2	847.7
Establishments with an average of—												
1 to 4 employees	E9	285	.5	8.8	.4	.7	5.5	27.6	11.7	39.1	1.8	8.2
5 to 9 employees	E8	142	1.0	16.4	.6	1.3	9.0	44.1	19.8	64.0	3.9	13.7
10 to 19 employees	E4	120	1.6	27.3	1.0	2.0	14.1	72.0	31.8	103.8	3.5	20.4
20 to 49 employees	E2	125	3.9	64.0	2.6	4.9	33.4	152.0	71.5	219.4	10.2	48.5
50 to 99 employees	E2	62	4.5	77.0	2.8	5.4	36.3	212.7	105.7	313.2	12.1	71.6
100 to 249 employees	E1	67	11.2	195.1	7.4	14.4	97.1	482.7	272.7	745.9	38.8	173.7
250 to 499 employees	—	35	13.1	241.3	8.5	16.0	121.7	810.6	298.3	1 094.6	72.0	262.4
500 to 999 employees	—	16	11.1	192.3	8.5	16.8	117.5	617.1	251.3	865.9	62.8	118.1
1,000 to 2,499 employees	—	7	10.0	177.3	6.6	12.7	82.9	466.1	189.7	638.7	25.0	131.3
Covered by administrative records <sup>2</sup>	E9	356	1.7	24.4	1.1	2.2	13.5	67.9	30.9	99.3	4.7	20.1
<b>INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES</b>												
Total	E1	1 367	68.8	1 211.1	46.1	87.8	633.1	3 450.8	2 233.1	5 667.1	187.7	1 106.7
Establishments with an average of—												
1 to 4 employees	E8	454	1.0	14.3	.7	1.4	8.9	39.7	22.9	62.9	1.7	12.0
5 to 9 employees	E6	248	1.6	26.9	1.2	2.2	15.4	63.6	39.5	103.4	2.8	17.1
10 to 19 employees	E4	213	3.0	46.0	2.1	4.0	27.2	104.2	57.0	160.7	3.0	26.0
20 to 49 employees	E3	202	6.3	91.6	4.6	8.4	51.4	225.6	168.6	393.2	9.6	70.9
50 to 99 employees	E1	97	6.7	93.8	4.9	9.1	53.0	252.4	183.0	430.7	13.1	93.5
100 to 249 employees	E2	89	14.1	211.2	10.1	19.1	118.3	597.8	398.1	995.6	36.2	189.1
250 to 499 employees	E1	38	13.5	236.8	9.1	17.2	125.7	629.0	419.9	1 050.8	37.4	204.6
500 to 999 employees	—	20	13.6	254.8	9.2	17.6	142.3	933.7	640.6	1 572.3	41.5	309.5
1,000 to 2,499 employees	—	5	9.0	235.6	4.2	8.9	91.1	604.9	303.5	897.6	42.5	183.9
2,500 employees or more	—	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	487	2.2	27.6	1.6	3.1	15.8	76.0	45.8	122.5	2.9	25.1
<b>INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES</b>												
Total	E1	485	15.5	281.3	9.8	18.8	132.0	642.8	473.3	1 111.7	21.6	271.2
Establishments with an average of—												
1 to 4 employees	E8	182	.3	4.9	.2	.5	3.2	10.0	9.5	19.5	1.6	3.9
5 to 9 employees	E6	101	.7	9.9	.5	.9	6.1	19.7	15.6	36.3	.5	6.7
10 to 19 employees	E1	71	1.0	15.3	.7	1.3	9.5	27.2	27.0	54.5	1.6	11.2
20 to 49 employees	E3	67	2.0	31.2	1.4	2.7	16.7	60.3	38.8	100.0	2.5	20.0
50 to 99 employees	E1	31	2.1	33.3	1.3	2.4	15.6	78.1	68.4	146.7	2.6	30.2
100 to 249 employees	—	18	2.9	54.3	1.7	3.4	25.7	120.8	154.3	276.4	4.7	68.8
250 to 499 employees	—	10	3.4	69.5	1.9	3.6	27.3	157.8	105.7	258.3	4.1	77.9
500 to 999 employees	—	5	3.1	62.8	2.1	4.0	27.9	169.0	54.0	219.9	4.0	52.5
Covered by administrative records <sup>2</sup>	E9	191	.6	7.0	.4	.8	3.9	13.5	13.1	26.7	.3	5.7
<b>INDUSTRY 3851, OPHTHALMIC GOODS</b>												
Total	E1	409	26.3	416.9	17.3	35.1	215.2	886.5	388.0	1 287.2	41.6	328.0
Establishments with an average of—												
1 to 4 employees	E9	154	.3	3.8	.2	.4	2.4	9.2	4.1	13.3	.4	4.1
5 to 9 employees	E8	55	.4	4.9	.3	.5	2.7	9.9	4.8	14.6	.5	4.1
10 to 19 employees	E6	77	1.0	14.0	.7	1.4	7.9	25.4	19.1	44.3	2.0	10.3
20 to 49 employees	E4	55	1.8	25.0	1.3	2.5	14.8	52.3	35.6	88.0	1.9	18.9
50 to 99 employees	E2	14	.9	11.2	.8	1.3	7.8	27.2	16.2	42.2	1.5	10.0
100 to 249 employees	E1	27	4.4	56.8	3.4	6.5	36.8	126.2	64.1	189.2	6.8	42.2
250 to 499 employees	E1	20	7.3	114.5	5.3	10.9	66.7	209.6	108.3	316.7	12.8	103.6
500 to 999 employees	—	4	10.2	186.8	5.4	11.7	76.1	426.7	135.8	578.9	15.8	134.8
1,000 to 2,499 employees	—	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	—	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	166	.6	6.8	.4	.9	3.9	15.0	7.1	22.3	.6	7.0

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	All establish- ments (no.)	All employees		Production workers			Value added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expendi- tures (million dollars)	End-of-year invento- ries (million dollars)	
		E1	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)						
<b>INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>												
Total	-	795	119.3	3 193.1	64.1	123.7	1 457.2	10 859.5	5 859.7	17 037.5	752.6	2 601.4
Establishments with an average of—												
1 to 4 employees	E9	240	.4	7.6	.3	.5	4.4	26.9	15.8	43.0	1.4	8.4
5 to 9 employees	E8	126	.8	14.0	.5	.9	7.2	47.8	28.7	76.7	2.9	14.7
10 to 19 employees	E7	140	1.9	35.3	1.1	2.2	19.1	100.0	67.4	170.0	5.2	29.6
20 to 49 employees	E3	129	4.1	74.8	2.4	4.6	36.6	190.9	180.6	370.4	10.2	64.3
50 to 99 employees	E1	68	4.6	91.4	2.7	5.2	43.6	271.6	168.8	439.0	13.8	93.4
100 to 249 employees	-	40	6.1	123.4	3.7	7.1	63.1	460.0	337.3	804.1	31.0	128.8
250 to 499 employees	E1	28	9.9	228.0	6.0	12.0	116.8	599.1	495.8	1 099.3	29.7	204.1
500 to 999 employees	-	10	6.9	146.2	3.9	7.8	73.4	470.0	351.8	791.3	30.7	182.9
1,000 to 2,499 employees	-	8	11.3	274.9	5.6	10.3	108.2	708.6	671.8	1 393.7	34.9	211.5
2,500 employees or more	-	6	73.2	2 197.6	37.9	73.0	984.9	7 984.7	3 541.7	11 850.1	592.8	1 663.7
Covered by administrative records <sup>2</sup>	E9	346	2.0	32.6	1.1	2.1	16.5	108.8	58.8	168.5	5.9	31.3
<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES</b>												
Total	-	237	16.8	248.1	12.3	22.4	150.2	483.5	688.2	1 187.6	14.6	281.0
Establishments with an average of—												
1 to 4 employees	E9	90	.2	2.1	.1	.2	1.5	4.4	5.6	10.1	.1	2.4
5 to 9 employees	E8	26	.2	2.3	.1	.3	1.3	4.6	6.2	10.8	.1	2.3
10 to 19 employees	E6	34	.5	6.6	.4	.7	4.0	12.6	14.6	27.7	.4	6.8
20 to 49 employees	E3	37	1.1	17.0	.9	1.6	10.1	31.8	32.3	65.9	1.1	12.1
50 to 99 employees	E2	17	1.2	21.7	.9	1.8	13.7	31.6	39.8	74.9	1.0	18.9
100 to 249 employees	-	16	2.9	39.4	2.2	3.9	24.8	87.4	79.9	171.9	1.1	40.9
250 to 499 employees	-	10	3.3	47.5	2.4	4.2	29.7	102.0	132.8	236.9	2.6	65.6
500 to 999 employees	-	5	7.4	111.6	5.3	9.6	65.1	209.0	377.0	589.3	8.3	132.0
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	96	.5	6.1	.4	.7	3.8	12.1	16.1	28.5	.3	6.9

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

<sup>1</sup>Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establish- ments (number)	All employees		Production workers			Value added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expendi- tures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
<b>3841 Surgical and medical instruments:</b>											
Entire industry		859	56.9	999.5	38.5	74.3	517.5	2 884.8	1 252.5	4 084.5	230.2
Establishments with 75 percent specialization or more		810	45.8	779.3	32.1	61.5	428.5	2 310.9	965.0	3 236.6	188.0
<b>38411 Surgical and medical instruments and apparatus:</b>											
Establishments with this product class primary		289	48.3	844.4	32.8	63.2	436.1	2 484.0	1 057.8	3 491.4	194.7
Establishments with 75 percent specialization or more in class		254	38.6	652.2	27.5	52.4	362.9	1 984.3	811.8	2 757.0	166.7
<b>38412 Hospital furniture:</b>											
Establishments with this product class primary		42	3.4	66.9	2.2	4.2	34.0	170.5	94.9	262.6	19.3
Establishments with 75 percent specialization or more in class		29	1.7	31.9	1.2	2.2	18.4	77.3	39.1	115.4	3.2
<b>3842 Surgical appliances and supplies:</b>											
Entire industry		1 367	68.8	1 211.1	46.1	87.8	633.1	3 450.8	2 233.1	5 667.1	187.7
Establishments with 75 percent specialization or more		1 288	54.4	950.9	36.4	68.7	495.7	2 609.5	1 685.1	4 295.2	143.6
<b>38421 Surgical appliances and supplies:</b>											
Establishments with this product class primary		544	47.0	884.5	30.3	59.1	444.4	2 603.2	1 601.5	4 185.4	148.6
Establishments with 75 percent specialization or more in class		492	37.9	712.5	24.2	46.5	356.2	1 978.4	1 251.0	3 223.8	114.7
<b>38423 Personal industrial safety devices:</b>											
Establishments with this product class primary		130	13.9	219.4	10.0	17.9	124.5	584.3	491.0	1 073.9	23.5
Establishments with 75 percent specialization or more in class		106	9.3	139.3	7.0	12.4	81.3	389.7	294.0	686.9	13.5
<b>38424 Electronic hearing aids:</b>											
Establishments with this product class primary		19	2.4	37.9	1.6	3.1	21.9	81.2	42.0	125.7	4.5
Establishments with 75 percent specialization or more in class		17	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—  
Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3843	<b>Dental equipment and supplies:</b> Entire industry ----- Establishments with 75 percent specialization or more -----	485 475	15.5 14.5	281.3 261.2	9.8 9.1	18.8 17.5	132.0 120.9	642.8 595.3	473.3 400.9	1 111.7 996.5	21.6 20.1
38431	Dental professional equipment and supplies: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	120 103	9.8 8.3	188.8 158.8	6.0 5.1	11.5 9.7	83.4 67.6	444.2 362.8	214.9 173.2	652.4 533.3	13.9 11.2
38432	Dental laboratory equipment and supplies: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	56 47	3.2 2.3	55.8 39.7	2.0 1.4	3.7 2.8	27.1 19.8	130.6 97.7	203.7 134.0	336.6 232.8	4.8 3.1
3851	<b>Ophthalmic goods:</b> Entire industry ----- Establishments with 75 percent specialization or more -----	409 391	26.3 21.2	416.9 307.0	17.3 14.9	35.1 30.2	215.2 176.5	886.5 592.9	388.0 290.1	1 287.2 895.0	41.6 32.3
38511	Ophthalmic frames and temples: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	29 26	3.6 3.2	50.5 46.0	2.6 2.4	5.2 4.8	31.7 29.1	96.7 88.5	57.4 50.7	155.3 140.7	2.6 2.3
38514	Glass ophthalmic focus lenses: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	18 15	3.0 (D)	36.9 (D)	2.4 (D)	5.5 (D)	25.6 (D)	95.7 (D)	62.0 (D)	151.2 (D)	2.5 (D)
38515	Plastics ophthalmic focus lenses: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	11 9	2.3 (D)	34.1 (D)	1.6 (D)	3.2 (D)	21.9 (D)	65.9 (D)	36.0 (D)	101.9 (D)	6.3 (D)
38516	Contact lenses: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	37 33	8.6 (D)	167.6 (D)	4.4 (D)	9.3 (D)	62.3 (D)	380.1 (D)	99.5 (D)	480.5 (D)	19.8 (D)
38517	Ophthalmic goods, n.e.c.: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	40 32	5.7 2.3	84.9 36.2	4.0 1.6	7.4 3.1	48.9 20.7	152.5 90.8	91.1 42.1	259.5 133.2	5.8 2.7
3861	<b>Photographic equipment and supplies:</b> Entire industry ----- Establishments with 75 percent specialization or more -----	795 748	119.3 106.2	3 193.1 2 855.5	64.1 58.6	123.7 112.8	1 457.2 1 343.8	10 859.5 10 080.7	5 859.7 4 918.3	17 037.5 15 334.5	752.6 664.7
38611	Still picture equipment: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	87 69	33.1 (D)	816.5 (D)	20.9 (D)	39.4 (D)	422.5 (D)	1 201.8 (D)	1 055.9 (D)	2 336.7 (D)	(D)
38612	Photocopying equipment: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	18 12	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D)
38613	Motion picture equipment: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	34 26	3.0 1.3	61.6 25.8	1.6 .8	3.0 1.6	26.0 13.9	143.6 99.4	100.0 38.8	247.5 138.7	6.8 4.7
38614	Microfilming, blueprinting, and whiteprinting equipment: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	31 25	5.4 (D)	121.9 (D)	2.4 (D)	4.5 (D)	40.0 (D)	348.8 (D)	317.9 (D)	665.1 (D)	11.7 (D)
38615	Sensitized film and plates, silver halide type: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	34 22	45.4 (D)	1 371.4 (D)	22.6 (D)	44.2 (D)	607.5 (D)	3 864.8 (D)	1 791.8 (D)	5 863.9 (D)	(D)
38616	Sensitized paper and cloth, silver halide type: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	5 4	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D)
38617	Sensitized film, plates, paper, and cloth, except silver halide type: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	48 44	5.6 5.1	117.6 106.6	3.6 3.2	7.2 6.5	68.5 61.7	484.0 457.6	379.7 363.3	864.4 820.6	25.1 24.0
38618	Prepared photographic chemicals: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	39 37	1.8 (D)	44.9 (D)	.9 (D)	1.6 (D)	15.5 (D)	243.3 (D)	144.1 (D)	381.0 (D)	10.5 (D)
38619	X-ray film and plates: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	3 1	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D)
3873	<b>Watches, clocks, and watchcases:</b> Entire industry ----- Establishments with 75 percent specialization or more -----	237 222	16.8 15.0	248.1 224.6	12.3 11.0	22.4 20.2	150.2 136.0	483.5 434.4	688.2 640.3	1 187.6 1 089.9	14.6 12.5
38732	Clocks, timing mechanisms, time switches, and clock parts: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	63 54	8.4 6.7	111.8 88.4	6.7 5.4	11.9 9.8	76.1 62.1	239.1 190.3	221.9 173.8	464.0 366.4	8.4 6.2
38734	Watches with imported movements or modules: Establishments with this product class primary ----- Establishments with 75 percent specialization or more in class -----	14 10	4.1 (D)	76.8 (D)	2.3 (D)	4.5 (D)	35.0 (D)	170.8 (D)	371.8 (D)	543.2 (D)	3.5 (D)

See footnotes at end of table.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1982—Con.**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3873	<b>Watches, clocks, and watchcases—Con.</b>										
38736	Watches with domestic movements or modules:										
	Establishments with this product class primary	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
38737	Watchcases and parts for watchcases:										
	Establishments with this product class primary	11	1.1	16.4	.9	1.5	11.3	21.7	25.1	53.7	.4
	Establishments with 75 percent specialization or more in class	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. **Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years**

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments				
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B ÷ Col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B ÷ Col. F (percent)	
3841	Surgical and medical instruments	1982	4 084.5	3 480.2	396.9	207.3	90	4 271.9	3 480.2	791.7	81
		1977	1 829.4	1 513.2	207.3	108.9	88	1 891.3	1 513.2	378.1	80
		1972	961.8	802.9	85.2	73.6	90	984.2	802.9	181.3	82
3842	Surgical appliances and supplies	1982	5 667.1	4 484.8	751.2	431.1	86	5 018.8	4 484.8	533.9	89
		1977	2 588.2	2 063.0	303.2	222.0	87	2 413.0	2 063.0	350.0	85
		1972	1 453.5	1 027.6	266.7	159.2	79	1 142.1	1 027.6	114.5	90
3843	Dental equipment and supplies	1982	1 111.7	943.0	49.0	119.7	95	957.0	943.0	14.0	99
		1977	786.7	645.2	58.9	82.6	92	660.7	645.2	15.5	98
		1972	409.2	331.3	26.2	51.7	93	352.3	331.3	21.0	94
3851	Ophthalmic goods	1982	1 287.2	1 060.5	109.7	116.9	91	1 081.1	1 060.5	20.6	98
		1977	971.8	827.9	67.5	76.4	92	844.3	827.9	16.4	98
		1972	568.3	465.0	71.5	31.8	87	483.5	465.0	18.5	96
3861	Photographic equipment and supplies	1982	17 037.5	14 537.8	944.9	1 554.8	94	14 990.4	14 537.8	452.6	97
		1977	9 933.9	8 779.3	470.3	684.3	95	9 217.5	8 779.3	438.2	95
		1972	5 623.9	5 046.9	255.4	321.6	95	5 255.4	5 046.9	208.5	96
3873	Watches, clocks, and watchcases	1982	1 187.6	1 044.7	57.7	85.1	95	1 121.8	1 044.7	77.1	93
		1977	1 597.8	1 261.5	117.6	218.7	91	1 332.0	1 261.5	70.5	95
		1972	937.2	825.1	75.2	36.9	92	871.1	825.1	46.0	95

**Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982**

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Surgical and medical instruments (SIC 3841)	Surgical appliances and supplies (SIC 3842)	Dental equipment and supplies (SIC 3843)	Ophthalmic goods (SIC 3851)	Photographic equipment and supplies (SIC 3861)	Watches, clocks, and watchcases (SIC 3873)	Other industries
	<b>Total</b>	(X)	4 084.5	5 667.1	1 111.7	1 287.2	17 037.5	1 187.6	(X)
	<b>Primary products</b>	(X)	3 480.2	4 484.8	943.0	1 060.5	14 537.8	1 044.7	(X)
	<b>Secondary products</b>	(X)	396.9	751.2	49.0	109.7	944.9	57.7	(X)
	<b>Miscellaneous receipts</b>	(X)	207.3	431.1	119.7	116.9	1 554.8	85.1	(X)
3841-	<b>Surgical and medical instruments</b>	4 271.9	3 480.2	(D)	(D)	(D)	(D)	-	552.7
38411	Surgical and medical instruments and apparatus	3 686.1	2 969.6	217.8	(D)	(D)	(D)	-	(D)
38412	Hospital furniture	270.0	200.9	(D)	(D)	(D)	(D)	-	(D)
38410	Surgical and medical instruments, n.s.k.	315.8	309.7	.3	-	-	-	-	5.7
3842-	<b>Surgical appliances and supplies</b>	5 018.8	(D)	4 484.8	(D)	(D)	(D)	-	313.4
38421	Surgical appliances and supplies	3 785.7	(D)	3 308.0	(D)	(D)	(D)	-	264.0
38423	Personal industrial safety devices	874.2	(D)	819.6	-	(D)	-	-	48.1
38424	Electronic hearing aids	109.2	-	(D)	-	-	-	-	(D)
38420	Surgical appliances and supplies, n.s.k.	249.5	(D)	(D)	(D)	-	-	-	(D)
3843-	<b>Dental equipment and supplies</b>	957.0	(D)	(D)	943.0	-	-	-	(D)
38431	Dental professional equipment and supplies	567.9	-	(D)	559.1	-	-	-	(D)
38432	Dental laboratory equipment and supplies	268.8	-	-	(D)	-	-	-	(D)
38430	Dental equipment and supplies, n.s.k.	120.4	(D)	-	(D)	-	-	-	1.3
3851-	<b>Ophthalmic goods</b>	1 081.1	(D)	(D)	-	1 060.5	-	-	(D)
38511	Ophthalmic fronts and temples	153.7	-	(D)	-	(D)	-	-	(D)
38514	Glass ophthalmic focus lenses	155.1	-	-	-	(D)	-	-	(D)
38515	Plastics ophthalmic focus lenses	115.3	(D)	-	-	(D)	-	-	(D)
38516	Contact lenses	228.8	-	-	-	(D)	-	-	(D)
38517	Ophthalmic goods, n.e.c.	284.4	-	(D)	-	274.3	-	-	(D)
38510	Ophthalmic goods, n.s.k.	143.8	-	-	-	(D)	-	-	(D)
3861-	<b>Photographic equipment and supplies</b>	14 990.4	-	(D)	(D)	-	14 537.8	(D)	451.9
38611	Still picture equipment	1 473.3	-	-	-	-	1 396.3	(D)	(D)
38612	Photocopying equipment	(D)	-	-	-	-	(D)	-	(D)
38613	Motion picture equipment	203.2	-	-	-	-	(D)	-	(D)
38614	Microfilming, blueprinting, and whiteprinting equipment	466.0	-	-	-	-	-	-	(D)
38615	Sensitized film and plates, silver halide type	4 154.7	-	-	-	-	4 143.1	-	11.6
38616	Sensitized paper and cloth, silver halide type	(D)	-	-	-	-	(D)	-	(D)
38617	Sensitized film, plates, paper, and cloth, except silver halide type	985.0	-	(D)	-	-	842.4	-	(D)
38618	Prepared photographic chemicals	966.8	-	-	-	-	882.6	-	84.2
38619	X-ray film and plates	(D)	-	-	-	-	(D)	-	(D)
38610	Photographic equipment and supplies, n.s.k.	(D)	-	-	(D)	-	(D)	-	(D)
3873-	<b>Watches, clocks, and watchcases</b>	1 121.8	-	-	-	-	-	1 044.7	77.1
38732	Clocks, timing mechanisms, time switches, and clock parts	475.1	-	-	-	-	-	(D)	(D)
38734	Watches with imported movements or modules	457.9	-	-	-	-	-	457.9	-
38736	Watches with domestic movements or modules	58.4	-	-	-	-	-	(D)	(D)
38737	Watchcases and parts for watchcases	70.5	-	-	-	-	-	70.5	-
38730	Watches, clocks, and watchcases, n.s.k.	60.0	-	-	-	-	-	58.9	1.1
<b>OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP</b>									
2257-	Circular knit fabric mills	(X)	-	(D)	-	-	-	-	(X)
2258-	Warp knit fabric mills	(X)	-	(D)	-	-	-	-	(X)
2259-	Knitting mills, n.e.c.	(X)	-	(D)	-	-	-	-	(X)
2261-	Finished cotton broad woven fabrics	(X)	-	(D)	-	-	-	-	(X)
2262-	Finishing plants, manmade fiber and silk	(X)	-	(D)	-	-	-	-	(X)
2292-	Lace goods	(X)	(D)	-	-	-	-	-	(X)
2295-	Coated fabrics, not rubberized	(X)	-	(D)	-	-	-	-	(X)
2297-	Nonwoven fabrics	(X)	-	(D)	-	-	-	-	(X)
2298-	Cordage and twine	(X)	-	(D)	-	-	-	-	(X)
2329-	Men's and boys' clothing, n.e.c.	(X)	-	(D)	-	-	-	-	(X)
2342-	Brassieres and allied garments	(X)	-	(D)	-	-	-	-	(X)
2385-	Waterproof outergarments	(X)	-	(D)	-	-	-	-	(X)
2389-	Apparel and accessories, n.e.c.	(X)	-	(D)	-	-	-	-	(X)
2392-	House furnishings, n.e.c.	(X)	-	(D)	-	-	-	-	(X)
2393-	Textile bags	(X)	-	(D)	-	-	-	-	(X)
2399-	Fabricated textile products, n.e.c.	(X)	-	(D)	-	-	-	-	(X)
2514-	Metal household furniture	(X)	(D)	(D)	-	-	-	-	(X)
2522-	Metal office furniture	(X)	(D)	(D)	-	-	-	-	(X)
2542-	Metal partitions and fixtures	(X)	(D)	2.0	-	-	-	-	(X)
2599-	Furniture and fixtures, n.e.c.	(X)	4.7	(D)	-	-	-	-	(X)
2621-	Paper mill products, except building paper	(X)	-	(D)	-	-	-	-	(X)
2641-	Coated and glazed paper	(X)	(D)	(D)	-	-	-	-	(X)
2647-	Sanitary paper products	(X)	-	33.0	-	-	-	-	(X)
2648-	Stationery products	(X)	-	(D)	-	-	-	-	(X)
2649-	Converted paper products, n.e.c.	(X)	-	(D)	-	-	-	-	(X)
2819-	Industrial inorganic chemicals, n.e.c.	(X)	-	(D)	-	-	-	(D)	(X)
2821-	Plastics materials and resins	(X)	-	-	-	-	-	(D)	(X)
2834-	Pharmaceutical preparations	(X)	(D)	(D)	-	-	-	-	(X)
2844-	Toilet preparations	(X)	(D)	(D)	-	-	(D)	-	(X)
2851-	Paints and allied products	(X)	-	-	-	-	(D)	-	(X)
2865-	Cyclic crudes and intermediates	(X)	-	-	-	-	(D)	-	(X)
2869-	Industrial organic chemicals, n.e.c.	(X)	-	-	-	-	(D)	-	(X)
2893-	Printing ink	(X)	-	-	-	-	(D)	-	(X)
2899-	Chemical preparations, n.e.c.	(X)	(D)	(D)	-	-	(D)	-	(X)
3069-	Fabricated rubber products, n.e.c.	(X)	(D)	(D)	(D)	-	-	-	(X)
3079-	Miscellaneous plastics products	(X)	(D)	10.0	-	(D)	57.9	-	(X)
3143-	Men's footwear, except athletic	(X)	-	-	-	(D)	-	-	(X)
3161-	Luggage	(X)	-	(D)	-	-	-	-	(X)
3231-	Products of purchased glass	(X)	-	(D)	-	(D)	-	-	(D)
3291-	Abrasive products	(X)	(D)	(D)	-	(D)	-	-	(X)
3357-	Nonferrous wire drawing and insulating	(X)	(D)	-	-	-	(D)	-	(X)
3399-	Primary metal products, n.e.c.	(X)	-	-	-	(D)	-	-	(X)
3443-	Fabricated plate work (boiler shops)	(X)	(D)	(D)	-	-	-	-	(X)
3469-	Metal stampings, n.e.c.	(X)	7.1	(D)	-	-	(D)	-	(X)
3489-	Ordnance and accessories, n.e.c.	(X)	-	-	-	-	(D)	-	(X)

See footnotes at end of table.

**Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.**

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Surgical and medical instruments (SIC 3841)	Surgical appliances and supplies (SIC 3842)	Dental equipment and supplies (SIC 3843)	Ophthalmic goods (SIC 3851)	Photographic equipment and supplies (SIC 3861)	Watches, clocks, and watchcases (SIC 3873)	Other industries
<b>OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP—Con.</b>									
3499-	Fabricated metal products, n.e.c.	(X)	(D)	(D)	—	—	(D)	—	(X)
3532-	Mining machinery	(X)	—	(D)	—	—	—	—	(X)
3537-	Industrial trucks and tractors	(X)	—	(D)	—	—	—	—	(X)
3544-	Special dies, tools, jigs, and fixtures	(X)	(D)	(D)	(D)	—	(D)	—	(X)
3545-	Machine tool accessories	(X)	(D)	(D)	—	(D)	(D)	—	(X)
3555-	Printing trades machinery	(X)	—	—	—	—	(D)	—	(X)
3559-	Special industry machinery, n.e.c.	(X)	—	(D)	—	(D)	(D)	—	(X)
3564-	Blowers and fans	(X)	—	(D)	—	—	—	—	(X)
3568-	Power transmission equipment, n.e.c.	(X)	(D)	—	—	—	—	—	(X)
3573-	Electronic computing equipment	(X)	—	—	—	—	(D)	—	(X)
3574-	Calculating and accounting machines	(X)	—	—	—	—	(D)	—	(X)
3589-	Service industry machinery, n.e.c.	(X)	—	(D)	—	—	(D)	—	(X)
3621-	Motors and generators	(X)	—	—	—	—	—	(D)	(X)
3634-	Electric housewares and fans	(X)	—	—	—	—	—	(D)	(X)
3643-	Current-carrying wiring devices	(X)	—	—	—	—	(D)	—	(X)
3644-	Noncurrent-carrying wiring devices	(X)	—	—	—	—	(D)	—	(X)
3646-	Commercial lighting fixtures	(X)	(D)	(D)	—	—	—	—	(X)
3648-	Lighting equipment, n.e.c.	(X)	—	(D)	—	—	—	—	(X)
3651-	Radio and TV receiving sets	(X)	—	(D)	—	(D)	14.8	—	(X)
3661-	Telephone and telegraph apparatus	(X)	—	—	—	—	(D)	(D)	(X)
3662-	Radio and TV communication equipment	(X)	(D)	(D)	—	—	(D)	(D)	(X)
3674-	Semiconductors and related devices	(X)	—	—	(D)	—	—	—	(X)
3679-	Electronic components, n.e.c.	(X)	—	(D)	(D)	—	(D)	—	(X)
3692-	Primary batteries, dry and wet	(X)	—	—	—	(D)	(D)	—	(X)
3693-	X-ray and electromedical apparatus	(X)	30.2	19.1	(D)	—	26.2	—	(X)
3728-	Aircraft equipment, n.e.c.	(X)	—	(D)	—	—	(D)	—	(X)
3769-	Space vehicle equipment, n.e.c.	(X)	—	(D)	—	—	—	—	(X)
3811-	Engineering and scientific instruments	(X)	28.0	11.1	—	(D)	(D)	(D)	(X)
3823-	Process control instruments	(X)	(D)	(D)	—	—	—	—	(X)
3825-	Instruments to measure electricity	(X)	(D)	2.7	—	—	(D)	—	(X)
3829-	Measuring and controlling devices, n.e.c.	(X)	10.1	(D)	—	—	(D)	(D)	(X)
3832-	Optical instruments and lenses	(X)	(D)	20.2	—	(D)	(D)	—	(X)
3949-	Sporting and athletic goods, n.e.c.	(X)	—	19.1	—	(D)	(D)	—	(X)
3999-	Manufacturing industries, n.e.c.	(X)	—	(D)	(D)	(D)	(D)	(D)	(X)
<b>MISCELLANEOUS RECEIPTS</b>									
93000 00	Receipts for work done for others on their materials	(X)	3.0	46.7	2.4	(D)	(D)	12.0	(X)
99980 00	Miscellaneous receipts, including receipts for repair work, sales of scrap and refuse, etc.	(X)	(X)	(X)	(X)	(X)	(X)	12.4	(X)
99980 13	Sales of scrap and refuse	(X)	(D)	.5	10.8	.2	40.5	(X)	(X)
99980 31	Receipts for installation or construction of products of the establishment	(X)	(D)	(D)	(D)	(X)	(X)	(X)	(X)
99980 41	Receipts for research and development work	(X)	1.1	(D)	(D)	(D)	(X)	(X)	(X)
99980 61	Receipts for repair work	(X)	10.6	70.2	5.8	(X)	(D)	(X)	(X)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc.	(X)	8.4	12.4	1.4	(D)	(D)	(X)	(X)
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment	(X)	182.8	300.4	99.0	101.3	703.5	60.7	(X)

**Table 5c-2. Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982**

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

1982 product code	Other industries	Value	1982 product code	Other industries	Value
3841-	<b>SURGICAL AND MEDICAL INSTRUMENTS</b>		3842-	<b>SURGICAL APPLIANCES AND SUPPLIES—Con.</b>	
	2531 Public building and related furniture .....	(D)		2647 Sanitary paper products .....	104.5
	2599 Furniture and fixtures, n.e.c. .....	(D)		2834 Pharmaceutical preparations .....	(D)
	2831 Biological products .....	(D)		2844 Toilet preparations .....	(D)
	2834 Pharmaceutical preparations .....	(D)		3069 Fabricated rubber products, n.e.c. .....	(D)
	3069 Fabricated rubber products, n.e.c. .....	29.7		3079 Miscellaneous plastics products .....	10.6
	3079 Miscellaneous plastics products .....	(D)		3546 Power driven hand tools .....	(D)
	3612 Transformers .....	(D)		3559 Special industry machinery, n.e.c. .....	(D)
	3634 Electric housewares and fans .....	(D)			
	3693 X-ray, electromedical, and electrotherapeutic apparatus .....	96.7			
	3811 Engineering and scientific instruments .....	10.5			
	3829 Measuring and controlling devices, n.e.c. .....	(D)			
	3832 Optical instruments and lenses .....	(D)			
3842-	<b>SURGICAL APPLIANCES AND SUPPLIES</b>		3861-	<b>PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>	
	2211 Weaving mills, cotton .....	(D)		2641 Paper coating and glazing .....	(D)
	2269 Finishing plants, n.e.c. .....	(D)		2649 Converted paper products, n.e.c. .....	(D)
	2392 House furnishings, n.e.c. .....	9.5		2795 Lithographic platemaking services .....	(D)
	2499 Wood products, n.e.c. .....	(D)		2834 Pharmaceutical preparations .....	(D)
	2641 Paper coating and glazing .....	14.6		2899 Chemical preparations, n.e.c. .....	(D)
				3079 Miscellaneous plastics products .....	(D)
				3291 Abrasive products .....	(D)
				3579 Office machines, n.e.c., and typewriters .....	(D)
				3728 Aircraft equipment, n.e.c. .....	(D)
			3873-	<b>WATCHES, CLOCKS, AND WATCHCASES</b>	
				2499 Wood products, n.e.c. .....	7.1
				3579 Office machines, n.e.c., and typewriters .....	(D)
				3714 Motor vehicle parts and accessories .....	(D)

**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	Value (million dollars)	Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	Value (million dollars)
<b>SURGICAL AND MEDICAL INSTRUMENTS</b>							
3841- --	<b>Total</b> .....	(NA)	(X)	4 271.9	(NA)	(X)	1 891.3
38411 --	Surgical and medical instruments and apparatus .....	(NA)	(X)	3 686.1	(NA)	(X)	1 506.7
38411 12	Surgical instruments, including suture needles, and eye, ear, nose, and throat instruments .....	57	(X)	669.4	42	(X)	153.5
38411 31	Orthopedic instruments, such as bone drills, bone plates, etc., excluding eye, ear, nose, and throat instruments .....	20	(X)	92.8	12	(X)	27.1
38411 21	Diagnostic apparatus:						
38411 22	Metabolism and blood-pressure apparatus .....	17	(X)	79.7	5	(X)	12.9
38411 24	Optical diagnostic apparatus (those incorporating an optical lens or mirror) .....	13	(S)	56.1	8	1.2	12.6
	millions	55	(X)	255.8	35	(X)	115.3
38411 41	Other diagnostic apparatus .....	7			5	48.1	6.4
	millions						
38411 45	Syringes:						
	Other than hypodermic .....	2	(S)	312.7	4	*123.6	11.2
38411 46	Hypodermic:				7	*1 617.9	159.8
	Uniquely designed for prefilling .....	do			13	*3 175.3	115.3
38411 49	Other .....	3					
38411 51	Hypodermic needles .....	10	(S)	95.5			
38411 71	Anesthesia apparatus, instruments, and parts .....	14	(X)	85.2	10	(X)	28.2
38411 76	Oxygen tents .....	6	(X)	14.9	4	(X)	2.9
38411 81	Veterinary instruments .....	7	(X)	30.6	6	(X)	3.1
38411 82	Blood transfusion and I.V. equipment .....	30	(X)	533.3	18	(X)	130.7
38411 83	Blood donor kits .....	1					
38411 84	Mechanical therapy appliances and parts thereof .....	16	(X)	37.4	15	(X)	40.9
38411 86	Catheters .....	35	(X)	476.5			
38411 98	Other surgical and medical instruments .....	95	(X)	873.4	78	(X)	640.5
38411 00	Surgical and medical instruments and apparatus, n.s.k. .....	(NA)	(X)	72.8	(NA)	(X)	46.3
38412 --	Hospital furniture .....	(NA)	(X)	270.0	(NA)	(X)	206.7
38412 91	Operating room furniture, including tables, cases, cabinets, etc. .....	14	(X)	55.9	13	(X)	58.9
38412 93	Patient room furniture, including cabinets, overbed tables, desks, dressers, etc., but excluding beds and chairs .....	19	(X)	74.1	22	(X)	63.7
40412 96	Other hospital furniture, excluding operating and patient room furniture, beds, and instruments, but including cases, tables, bassinets, chart racks, back rests, etc. .....	40	(X)	138.0	29	(X)	82.6
38412 00	Hospital furniture, n.s.k. .....	(NA)	(X)	2.0	(NA)	(X)	1.5

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

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		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>SURGICAL AND MEDICAL INSTRUMENTS—Con.</b>							
38410 00	Surgical and medical instruments, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	216.5	(NA)	(X)	99.0
38410 02	Surgical and medical instruments, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	99.3	(NA)	(X)	78.9
<b>SURGICAL APPLIANCES AND SUPPLIES</b>							
3842- --	<b>Total</b> -----	(NA)	(X)	5 018.8	(NA)	(X)	2 413.0
38421 --	Surgical, orthopedic, prosthetic, and therapeutic appliances and supplies -----	(NA)	(X)	3 785.7	(NA)	(X)	1 773.0
38421 11	Orthopedic appliances (braces), including parts -----	94	(X)	105.2	42	(X)	153.6
38421 15	Sterilizers (hospital and surgical), excluding dental sterilizers -----	11	(X)	(3)	9	(X)	(4)
38421 22	Surgical dressings: Bandages, elastic ----- mil sq yd--	14	(S)	38.6	9	(S)	35.9
38421 23	Bandages, other, including muslin, plaster of paris, etc., excluding self-adhering bandages ----- do--	14	(S)	97.2	12	(S)	21.5
38421 24	Adhesive plaster, medicated and nonmedicated, including self-adhering bandages -----	8	(X)	(6)	8	(X)	143.5
38421 26	Gauze (absorbent and packing) ----- mil sq yd--	9	(S)	17.0	10	(S)	53.8
38421 27	Cotton, including cotton balls (sterile and nonsterile) -----	11	(X)	52.7	10	(X)	65.4
38421 29	Other surgical dressings, including sponges, compresses, pads, etc. -----	33	(X)	5682.4	17	(X)	131.4
38421 31	Disposable surgical drapes, including O/B and O/R packs -----	18	(X)	280.8	13	(X)	83.1
38421 32	Disposable incontinent pads, bed pads, and adult diapers -----	27	(X)	173.1	21	(X)	99.1
38421 33	Sterile surgical sutures: Absorbable -----	4	(X)	303.5	3	(X)	(4)
38421 34	Nonabsorbable -----	11	(X)	218.7	42	(X)	46.2
38421 35	Artificial limbs (prosthetic), including parts -----	101	(X)	63.2	9	(X)	21.9
38421 38	Elastic stockings -----	12	(X)	71.2	17	(X)	31.3
38421 41	Elastic braces, suspensions, and other elastic supports -----	23	(X)	61.9	10	(X)	20.8
38421 45	Arch supports and other foot appliances -----	22	(X)	191.1	17	(X)	38.7
38421 65	Breathing devices, excluding anesthetic apparatus but including incubators, respirators, resuscitators, inhalators, etc. -----	31	(X)	1,000			
38421 71	Surgical corsets -----	12	*97.9	11.1	16	(S)	17.8
38421 81	Crutches, canes, and other walking assistance devices -----	19	(X)	49.8	9	(X)	9.3
38421 82	Splints and trusses -----	17	(X)	24.6	10	(X)	6.0
38421 83	Patient transport devices: Wheel chairs ----- thousands--	28	*418.8	154.0	7	*274.4	53.2
38421 85	Other patient transport devices, including stretchers, wheeled chairs, tables, etc. -----	20	(X)	47.2			
38421 87	Therapeutic appliances and supplies: Hydrotherapy equipment, including full body and limb tanks (portable and stationary) -----	22	(X)	43.8	96	(X)	*657.7
38421 89	Other therapeutic equipment and supplies, excluding electromedical -----	23	(X)	70.8			
38421 99	Other surgical and orthopedic items not included in above categories -----	134	(X)	3975.6			
38421 00	Surgical, orthopedic, and prosthetic appliances and supplies, n.s.k. -----	(NA)	(X)	52.6	(NA)	(X)	82.8
38423 --	Personal industrial safety devices -----	(NA)	(X)	874.2	(NA)	(X)	403.1
38423 11	Respiratory protection equipment, including gas masks, abrasive masks, canister masks, etc. -----	25	(X)	320.8	19	(X)	127.5
38423 31	Eye and face protection devices, including face shields, hoods, motorcycle and industrial helmets, and welding helmets and masks, excluding industrial goggles and eye protectors -----	26	(X)	76.9	20	(X)	44.1
38423 51	Protective clothing, except shoes -----	67	(X)	195.6	35	(X)	68.4
38423 61	First aid, snake bite, and burn kits, both household and industrial types -----	17	(X)	22.3	17	(X)	23.6
38423 71	Other personal safety devices -----	52	(X)	170.6	41	(X)	119.6
38423 00	Personal industrial safety devices, n.s.k. -----	(NA)	(X)	88.1	(NA)	(X)	19.9
38424 --	Electronic hearing aids: Electronic hearing aids, complete units ----- thousands--	16	*469.5	109.2	16	(X)	58.1
38420 00	Surgical appliances and supplies, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	127.0	(NA)	(X)	114.0
38420 02	Surgical appliances and supplies, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	122.5	(NA)	(X)	64.8

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

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1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>DENTAL EQUIPMENT AND SUPPLIES</b>							
3843- --	<b>Total</b>	(NA)	(X)	957.0	(NA)	(X)	660.7
38431 --	Dental professional equipment and supplies	(NA)	(X)	567.9	(NA)	(X)	(NA)
	Professional equipment:						
38431 01	Dental chairs	15	*23.8	54.4	16	**26.3	40.6
38431 02	Instrument delivery systems (dental units)	16	38.7	44.7	16	(S)	45.1
38431 03	Dental hand pieces	16	256.0	31.8	17	*198.4	32.8
38431 04	Other dental professional equipment (including sterilizers, but excluding X-ray)	32	(X)	91.4	19	(X)	43.0
	Professional supplies:						
38431 05	Dental hand instruments (forceps and pliers, broaches, butting instruments, etc.)	21	(X)	40.8	15	(X)	21.2
38431 06	Burs, diamond points, abrasive points, wheels, disks, and similar tools for use with dental hand pieces	15	(X)	25.7	12	(X)	18.7
38431 07	Dental alloys for amalgams	1,000 troy oz--	11	*2 307.8	42.6	8	2 563.9
38431 08	Dental impression materials (alginates, silicones, etc.)	12	(X)	26.3	(6)	(D)	(6)
38431 09	Dental cements and other nonmetallic filling materials	12	(X)	30.5	7	(X)	18.1
38431 11	Other dental professional supplies	46	(X)	179.6	(6)	(D)	(6)
38431 00	Dental professional equipment and supplies, n.s.k.	(NA)	(X)	-	(NA)	(X)	-
38432 --	Dental laboratory equipment and supplies	(NA)	(X)	268.8	(NA)	(X)	(NA)
38432 01	Dental laboratory equipment, including furnaces, casting machines, lathes, benches, polishing units, flasks, blow pipes, presses, etc.	12	(X)	11.6	18	(X)	18.3
	Dental laboratory supplies:						
38432 02	Dental metals:						
	Precious	1,000 troy oz--	17	**569.0	139.4	17	*649.0
38432 03	Nonprecious	do--	12	(S)	18.1	9	*541.1
	Teeth (excluding dentures):						
38432 04	Porcelain	mil teeth--	12	**23.9	13.1	7	39.1
38432 05	Other including resinous and plastics	do--	8	*56.1	24.8	8	35.2
38432 06	Denture base materials	11	(X)	8.3	11	(X)	9.3
38432 07	Dental porcelain powders	4	(X)	2.6	(6)	(D)	(6)
38432 08	Other dental laboratory supplies (waxes, gypsums, etc.)	27	(X)	50.8	*15	(X)	*173.0
38432 00	Dental laboratory equipment and supplies, n.s.k.	(NA)	(X)	-	(NA)	(X)	-
38430 00	Dental equipment and supplies, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	93.7	(NA)	(NA)	58.5
38430 02	Dental equipment and supplies, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	26.7	(NA)	(NA)	18.6
<b>OPHTHALMIC GOODS</b>							
3851- --	<b>Total</b>	(NA)	(X)	1 081.1	(NA)	(X)	844.3
38511 --	Ophthalmic fronts and temples	(NA)	(X)	153.7	(NA)	(X)	154.2
	Fronts, finished (with or without decoration):						
38511 12	Gold filled fronts, full rimmed, semirimless, or rimless	millions--	7	1.6	11.2	10	**5.3
38511 14	Aluminum and other base metal fronts	do--	7	(D)	(7)	9	6.7
38511 15	Plastics fronts	do--	23	(S)	60.6	21	**18.5
38511 16	Combination fronts	do--	5	(S)	*13.8	10	5.9
38511 17	Temples (all types)	mil pairs--	20	**35.4	43.6	21	36.2
38511 00	Ophthalmic fronts and temples, n.s.k.	(NA)	(X)	24.4	(NA)	(X)	7.0
38514 --	Glass ophthalmic focus lenses	(NA)	(X)	155.1	(NA)	(X)	132.6
38514 31	Single vision lenses (ground and polished and moulded blanks)	mil pairs--	10	9.2	32.1	16	*18.2
	Multifocal lenses (finished, semifinished, and moulded blanks):						
38514 41	Bifocals	do--	10	8.6	83.6	13	17.8
38514 43	Trifocals and double segments	do--	7	*1.1	17.3	4	3.3
38514 00	Glass ophthalmic focus lenses, n.s.k.	(NA)	(X)	22.1	(NA)	(X)	8.4
38515 --	Plastic ophthalmic focus lenses	(NA)	(X)	115.3	(NA)	(X)	73.8
38515 25	Single vision lenses	mil pairs--	11	(S)	53.1	14	**10.0
38515 27	Multifocal lenses	do--	10	10.4	59.6	13	*6.6
38515 00	Plastics ophthalmic focus lenses, n.s.k.	(NA)	(X)	2.6	(NA)	(X)	6.5
38516 --	Contact lenses	(NA)	(X)	228.8	(NA)	(X)	117.7
38516 12	Conventional (hard)	mil pairs--	20	*10.0	32.0	10	(S)
38516 13	Soft	do--	19	(S)	190.6	5	(S)
38516 00	Contact lenses, n.s.k.	(NA)	(X)	6.2	(NA)	(X)	117.7
38517 --	Ophthalmic goods except fronts, temples, and lenses	(NA)	(X)	284.4	(NA)	(X)	259.3
38517 01	Ophthalmic spectacles and eyeglasses (frames and mountings of all types when sold with corrective lenses inserted, with or without decoration)	millions--	10	(S)	13.0	9	(S)
38517 02	Industrial goggles, eye protectors, welding circles and plates, mountings, and parts	(NA)	(X)	54.6	13	(X)	24.7
38517 03	Sun or glare glasses and sunglasses, ready-made	millions--	16	(D)	(8)	7	(S)
38517 09	Other ophthalmic goods and accessories (sunglass frames, single readers and magnifiers, holders, gas mask inserts, nonfocus fashion tinted lenses, centers, oxfords, etc.)	(NA)	(X)	22	*209.3	(NA)	48.5
38517 00	Ophthalmic goods except fronts, temples, and lenses, n.s.k.	(NA)	(X)	7.5	(NA)	(X)	7.5
38510 00	Ophthalmic goods, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	121.5	(NA)	(X)	75.9
38510 02	Ophthalmic goods, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	22.3	(NA)	(X)	30.8

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

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1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>							
38611 --	<b>Total</b>	(NA)	(X)	14 990.4	(NA)	(X)	9 217.5
38611 --	Still picture equipment	(NA)	(X)	1 473.3	(NA)	(X)	925.8
38611 12	Still cameras:						
38611 14	Hand type cameras (excluding film, bulbs, batteries, etc., in outfits):						
38611 21	Fixed focus	6					
	Variable focus	2	18 039.5	576.7	5	14 382.0	377.6
38611 32	Process cameras for photoengraving and photolithography (including value of stands and attachments when shipped with process cameras)	8	(S)	55.2	9	(S)	20.0
	Other still cameras, including view and studio, designed primarily for tripod or stand, but excluding photocopying, microfilming, blueprinting, brownprinting, and whiteprinting	14	(S)	39.0	9	*57.1	41.5
38611 43	Flash units, except built-in	1	(S)	(S)	8	(S)	12.3
	Projectors, except rear screen viewers:						
38611 66	Slide film	6	*332.6	58.2	7	*515.7	68.3
38611 68	Strip film, including combination slide and strip	5	(S)	32.1	8	*94.1	12.9
38611 67	Other, including overhead, opaque, etc.	5	**33.1	10.3	5	*73.1	12.3
38611 63	Rear screen viewers:						
38611 64	Slide film	6	154.3	22.9	3	66.4	14.0
	Strip film	5	**33.1	10.3	6	80.7	13.3
38611 73	Still picture commercial type finishing equipment:						
38611 75	Processing equipment for film	17	12.8	147.0	5	(X)	61.0
38611 79	Processing equipment for paper	5			3	(X)	13.9
38611 82	Continuous printing machines	4			4	(X)	21.5
	All other processing equipment, including developing machines, and motor-operated print washers and dryers	10	(S)	175.0			
38611 81	Enlargers	1,000 heads			11	(X)	72.0
38611 99	Other still picture equipment, parts, attachments, and accessories, excluding lenses for sale separately and projection screens	61	9203.0	9302.7	38	(NA)	169.6
38611 00	Still picture equipment, n.s.k.	(NA)	(X)	31.2	(NA)	(X)	15.6
38612 --	Photocopying equipment (includes diffusion transfer, dye transfer, electrostatic, light and heat-sensitive types, thermographic, diazo, etc.)	(NA)	(X)	106 572.8	(NA)	(X)	113 577.9
38612 22	Photocopying equipment except cameras:						
38612 24	Photocopying equipment primarily for producing copies 8 in. x 14 in. or smaller	9			12		
38612 25	Photocopying equipment primarily for producing copies larger than 8 in. x 14 in.	4	(D)	(D)	4	(D)	(D)
38612 27	Photocopying cameras sold separately	1			2		
38612 00	Parts for photocopying equipment	15	(NA)		(NA)		
38613 --	Motion picture equipment	(NA)	(X)	203.2	(NA)	(X)	178.2
38613 16	8 mm and 16 mm motion picture equipment:						
38613 27	Cameras (excluding film, bulbs, batteries, etc., in outfits)	5	(S)	5.6	6	180.2	24.3
38613 46	Projectors:						
38613 52	16 mm (sound and silent)	6	51.1	30.5	6	77.9	37.7
38613 74	8 mm (sound and silent)	3	(S)	7.5	4	329.5	48.5
	Projection screens (for motion picture and/or still projection)	7	(S)	38.9	14	(S)	26.2
	8 mm and 16 mm motion picture parts, attachments, accessories, and other 8 mm and 16 mm motion picture equipment, including sound recording (excluding lenses for sale separately and projection screens)	10					
38613 81	35 mm and over motion picture equipment:						
38613 85	Cameras	5	(S)	62.0	5	(S)	5.4
38613 98	Projectors	5	(S)				
	35 mm and over motion picture parts, attachments, accessories, and other 35 mm and over motion picture equipment, including sound recording and studio equipment (excluding lenses for sale separately and processing equipment)	12	(Z)	27.1	7	(X)	8.1
38613 61	Motion picture processing equipment, all types, including printing machines, developing machines, and drying machines, excluding motion picture type equipment used for still picture work and interchangeable types	11	35.4	23.9	15	(X)	22.1
38613 00	Motion picture equipment, n.s.k.	(NA)	(X)	7.7	(NA)	(X)	5.9
38614 --	Microfilming, blueprinting, brownprinting, and whiteprinting equipment	(NA)	(X)	466.0	(NA)	(X)	240.2
38614 06	Microfilming equipment (including microfiche):						
38614 03	Cameras, including computer output	8	*13.1	100.9	3	(D)	(12)
38614 04	Microfilm readers	10	(S)	49.6	13	**219.8	42.1
38614 05	Microfilm reader-printers	5	(S)	68.7	9	(S)	67.8
38614 21	Other microfilm equipment	20	(X)	(13)	12	(X)	1290.6
38614 00	Blueprinting, brownprinting, and whiteprinting (direct process type) equipment	3	(X)	13246.4	3	(X)	39.7
	Microfilming, blueprinting, brownprinting, and whiteprinting equipment, n.s.k.	(NA)	(X)	.5	(NA)		

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			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
	<b>PHOTOGRAPHIC EQUIPMENT AND SUPPLIES—Con.</b>						
38615 --	Photographic sensitized film and plates, silver halide type (except X-ray) -----	(NA)	(X)	4 154.7	(NA)	(X)	2 587.3
38615 11	Motion picture black and white film, excluding microfilm: 35 mm and over ----- mil sq ft	2	(D)	(14)	2	(D)	(15)
38615 17	Under 35 mm (reported in terms of 16 mm linear feet) ----- do	1	(D)	(14)	2	(D)	(15)
38615 32	Motion picture color film: 35 mm and over ----- do	1	(D)	(14)	2	(D)	(15)
38615 37	Under 35 mm (reported in terms of 16 mm linear feet) ----- do	1	(D)	(14)	5	(D)	(15)
38615 57	Still picture black and white film, except X-ray film: Amateur type roll film (includes roll film in cassettes and cartridges) ----- do	1	(D)	(14)	2	(D)	(15)
38615 63	Sheet film, pack film, and long lengths of still picture roll film other than graphic arts film (includes rolls more than 25 ft in length or more than 30 mm in width) ----- do	6	(S)	192.7	5	(D)	(15)
38615 64	Graphic arts film for lithographic, rotogravure, photoengraving, and silk screen printing ----- do	12	(D)	(14)	11	(D)	(15)
38615 65	Photographic plates and slides, excluding presensitized printing plates ----- do	5	(D)	(14)	4	(S)	17.1
38615 73	Presensitized printing plates, unexposed: Metal ----- do	2	(D)	(14)	3	(S)	143.1
38615 74	Nonmetal, including foil ----- do	4	(S)	23.7	5	(S)	143.1
38615 75	Microfilm/microfiche ----- do	9	(S)	422.3	5	291.6	126.0
38615 76	Other film (aerofilm, etc.) ----- do	6	(S)	(14)	9	152.3	91.4
38615 81	Still picture color film ----- do	3	(D)	(14)	4	(S)	152.3
38615 00	Photographic sensitized film and plates, silver halide type, except X-ray, n.s.k. -----	(NA)	(D)	143 516.0	(NA)	(X)	4.1
38616 --	Sensitized photographic paper and cloth, silver halide type: Sensitized photographic paper and cloth, silver halide ----- mil sq ft	11	(X)	(10)	(NA)	(X)	(11)
38616 00	Sensitized photographic film, plates, paper, and cloth, other than silver halide type -----	(NA)	(X)	985.0	(NA)	(X)	443.1
38617 --	Sensitized photographic film, plates, paper, and cloth, other than silver halide type: Diazo type: Dry diazo print paper ----- mil sq yd	18	**1 019.4	172.4	11	1 071.5	68.5
38617 13	Moist diazo print paper ----- do	7	*34.4	10.4	3	(S)	(16)
38617 15	Paper reproducibles ----- do	9	50.2	24.5	14	(S)	43.4
38617 22	Diazo type film, except microfilm/microfiche ----- do	15	22.4	48.7	(17)	(17)	(17)
38617 23	Diazo microfilm/microfiche ----- do	6	(D)	(18)	7	(S)	1651.3
38617 24	All other diazo materials ----- do	4	(S)	164.8	174	1771.3	1710.4
38617 27	Sensitized paper for photocopy processes ----- do	10	(S)	193.4	11	(S)	212.4
38617 49	Other types, including sensitized film, plates, paper, and cloth for all other processes (including blueprint and brownprint types) ----- do	26	(S)	452.1	6	(X)	57.1
38617 00	Sensitized photographic film, plates, paper, and cloth, other than silver halide type, n.s.k. -----	(NA)	(X)	18.7	(NA)		
38618 --	Prepared photographic chemicals -----	(NA)	(X)	966.8	(NA)	(X)	634.3
38618 12	Prepared photographic chemicals (developers, fixers, toners, and other chemicals specifically prepared and packaged for use in photography): Office copy toners -----	19	(X)	505.6	18	(X)	266.6
38618 13	Other -----	33	(X)	453.2	23	(X)	353.9
38618 00	Prepared photographic chemicals, n.s.k. -----	(NA)	(X)	8.0	(NA)	(X)	13.8
38619 --	X-ray film and plates -----	(NA)	(X)	(10)	(NA)	(X)	515.3
38619 41	Medical ----- mil sq ft	7					
38619 43	Dental ----- do	2					
38619 45	Industrial ----- do	3					
38619 00	X-ray film and plates, n.s.k. -----	(NA)					
38610 00	Photographic equipment and supplies, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	(10)	(NA)	(X)	(11)
38610 02	Photographic equipment and supplies, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	168.5	(NA)	(X)	115.4
	<b>WATCHES, CLOCKS, AND WATCHCASES</b>						
38732 --	Total -----	(NA)	(X)	1 121.8	(NA)	(X)	1 332.0
38732 --	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts -----	(NA)	(X)	475.1	(NA)	(X)	455.7
	Clocks having a balance wheel and hairspring, pendulum, torsion band oscillator (or other oscillatory device with built-frequently) time base: Alarm (excluding clock timers and timing mechanisms) ----- thousands	2	(19)	(19)	3	(20)	(20)
38732 10	Household, except alarm: Wall ----- do	9	(S)	12.5	9	304.5	15.4
38732 14	All other, including chime and strike, desk, mantel, etc. ----- do	8	436.1	64.6	10	534.5	55.9
38732 16	Commercial, office, factory, and school ----- do	2	(D)	(21)	5	3 263.1	26.1
38732 18	Other clocks, complete (street, tower, master, automotive, etc.) ----- do	6	(D)	(22)	3	209 722.7	2053.3
38732 20	Clocks with other time bases (not having a balance wheel and hairspring, etc.): Alarm (excluding clock timers and timing mechanisms) ----- do	4	196 677.9	1939.1	5	8 533.0	29.9
38732 22	Household, except alarm: Wall ----- do	11	*4 802.9	52.1	11	7 782.1	60.5
38732 24	All other, including chime and strike, desk, mantel, etc. ----- do	10	1 946.1	49.5	8	352.3	18.7
38732 26	Commercial, office, factory, and school ----- do	3	(S)	212.7	7	1 379.5	33.7
38732 29	Other clocks, complete (street, tower, master, automotive, etc.) ----- do	8	(S)	2292.0	3		

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>WATCHES, CLOCKS, AND WATCHCASES—Con.</b>							
38732 —	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts—Con.						
	Timing mechanisms, not for time piece use (excluding time recording and time stamp machines):						
38732 52	Military timing mechanisms—thousands	2	(S)	77.8	2	(NA)	(23)
38732 53	Household timing mechanisms—do	9			8	17 127.3	69.8
38732 54	Commercial timing mechanisms—do	5	**2 023.8	10.1	7	**2 195.9	19.1
38732 56	Other timing mechanisms—do	11	**3 310.2	28.5	8	**2 195.0	16.9
38732 58	Timers and switch clocks with clock or watch movements or modules having dials or displays for telling time of day—do	4	(S)	4.3	4	(NA)	(23)
38732 61	Clock movements and modules, complete—do	8	*1 079.2	10.8	2	(NA)	23 21.1
38732 66	Clock cases and parts thereof—do	11	(X)	11.0	4	(X)	6.4
38732 68	Other clock parts (except timing motors)—do	7	(X)	9.3	7	(X)	16.3
38732 00	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts, n.s.k.—do	(NA)	(X)	10.7	(NA)	(X)	12.6
38734 —	Watches with imported movements or modules—do	(NA)	(X)	457.9	(NA)	(X)	300.7
	Watches with balance wheel and hairspring:						
38734 11	Zero to 1 jewel—thousands	2	(24)	(24)	3		
38734 12	More than 1 jewel—do	6	(24)	(24)	11	8 802.8	206.3
	Watches without balance wheel and hairspring:						
38734 21	Watches with solid state (electronic) modules or movements—do	3	(24)	(24)	14		
38734 22	Watches with other movements (quartz, tuning fork, etc.)—do	11	24**20 154.0	24 454.7	1	4 445.8	93.4
38734 00	Watches with imported movements or modules, n.s.k.—do	(NA)	(X)	3.2	(NA)	(X)	1.0
38736 —	Watches with domestic movements or modules, watch movements, and parts—do	(NA)	(X)	58.4	(NA)	(X)	448.6
38736 11	Watches with balance wheel and hairspring—thousands	4	(D)	(25)	5	24 134.1	160.8
	Watches without balance wheel and hairspring:						
38736 12	Watches with solid state (electronic) modules or movements—do	—	(D)	(25)	12	9 753.4	144.3
38736 13	Watches with other movements (quartz, tuning fork, etc.)—do	3	(D)	(25)	2		
	Watch movements and modules (solid state), complete, for sale separately (excluding those purchased and sold in the same condition):						
38736 31	With balance wheel and hairspring—do	—	(D)	(25)	1		
	Without balance wheel and hairspring:						
38736 32	Solid state (electronic) modules—do	1	(D)	(25)	7		
38736 33	Other movements (quartz, crystal, tuning, fork, etc.)—do	—	—	—	1	(S)	143.3
38736 39	Watch parts for sale separately (except watchcases, movements and modules, and crystals)—do	8	(X)	25 56.1	9		
38736 00	Watches with domestic movements or modules, watch movements and parts, n.s.k.—do	(NA)	(X)	2.3	(NA)	(X)	.2
38737 —	Watchcases and parts for watchcases—do	(NA)	(X)	70.5	(NA)	(X)	67.2
	Watchcases:						
38737 01	Precious metal—thousands	5	**707.7	18.0	10	*485.1	22.0
38737 02	Base metal—do	7	**5 476.0	19.5	13	9 271.5	35.9
38737 03	Other (including plastics)—do	1	(NA)	28.4	—	—	—
38737 19	Parts for watchcases—do	3			5	(S)	9.3
38737 00	Watchcases and parts for watchcases, n.s.k.—do	(NA)	(X)	4.6	(NA)	(X)	—
38730 00	Watches, clocks, and watchcases, n.s.k., typically for establishments with 5 employees or more (see note)—do	(NA)	(X)	31.5	(NA)	(X)	26.8
38730 02	Watches, clocks, and watchcases, n.s.k., typically for establishments with less than 5 employees (see note)—do	(NA)	(X)	28.5	(NA)	(X)	33.0

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

<sup>1</sup>Data reported by all producers, not just those with shipments of \$100,000 or more.

<sup>2</sup>For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>3</sup>For 1982, product codes 38421 15 and 38421 99 are combined to avoid disclosing data for individual companies.

<sup>4</sup>For 1977, product codes 38421 15, 38421 33, 38421 34, and 38421 99 were combined to avoid disclosing data for individual companies.

<sup>5</sup>For 1982, product codes 38421 24 and 38421 29 are combined to avoid disclosing data for individual companies.

<sup>6</sup>For 1977, product codes 38431 08, 38431 11, and 38432 07 were included with product code 38432 08.

<sup>7</sup>For 1982, product code 38511 14 is combined with product code 38511 16 to avoid disclosing data for individual companies.

<sup>8</sup>For 1982, product code 38517 03 is combined with product code 38517 09 to avoid disclosing data for individual companies.

<sup>9</sup>For 1982, product codes 38611 43 and 38611 99 are combined to avoid disclosing data for individual companies.

<sup>10</sup>For 1982, product classes 38612, 38616, 38619, and product class 38610 00 are combined to avoid disclosing data for individual companies.

<sup>11</sup>For 1977, product classes 38612, 38616, and product code 38610 00 were combined to avoid disclosing data for individual companies.

<sup>12</sup>For 1977, product codes 38614 06 and 38614 05 were combined to avoid disclosing data for individual companies.

<sup>13</sup>For 1982, product codes 38614 05 and 38614 21 are combined to avoid disclosing data for individual companies.

<sup>14</sup>For 1982, product codes 38615 11, 38615 17, 38615 32, 38615 37, 38615 57, 38615 64, 38615 65, 38615 73, 38615 81, and 38615 00 are combined to avoid disclosing data for individual companies.

<sup>15</sup>For 1977, product codes 38615 11 through 38615 64 plus 38615 81 were combined to avoid disclosing data for individual companies.

<sup>16</sup>For 1977, product code 38617 15 was included with product code 38617 23.

<sup>17</sup>For 1977, product code 38617 22 was included with product code 38617 24.

<sup>18</sup>For 1982, product codes 38617 23 and 38617 24 are combined to avoid disclosing data for individual companies.

<sup>19</sup>For 1982, product codes 38632 10 and 38732 22 were combined to avoid disclosing data for individual companies.

<sup>20</sup>For 1977, product code 38732 10 was combined with 38732 20 to avoid disclosing data for individual companies.

<sup>21</sup>For 1982, product codes 38732 18 and 38732 29 are combined to avoid disclosing data for individual companies.

<sup>22</sup>For 1982, product codes 38732 20 and 38732 30 are combined to avoid disclosing data for individual companies.

<sup>23</sup>For 1977, product codes 38732 52 and 38732 58 were combined to avoid disclosing data for individual companies.

<sup>24</sup>For 1982, product codes 38734 11, 38734 12, and 38734 22 were combined to avoid disclosing data for individual companies.

<sup>25</sup>For 1982, product codes 38736 11, 38736 13, 38736 31, 38736 32, and 38736 39 are combined to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
<b>38411, SURGICAL AND MEDICAL INSTRUMENTS AND APPARATUS</b>			<b>38423, PERSONAL INDUSTRIAL SAFETY DEVICES</b>		
United States -----	3 686.1	1 506.7	United States -----	874.2	403.1
California -----	516.0	179.6	California -----	106.3	54.0
Colorado -----	107.5	(FF)	Connecticut -----	8.9	(EE)
Connecticut -----	327.4	82.3	Illinois -----	52.5	18.6
Florida -----	169.2	76.0	Indiana -----	2.8	(AA)
Georgia -----	151.9	39.1	Kentucky -----	19.0	10.6
Illinois -----	337.2	110.6	Massachusetts -----	34.4	11.5
Indiana -----	165.7	26.7	Michigan -----	20.0	27.2
Maryland -----	18.6	(AA)	Missouri -----	6.8	(BB)
Massachusetts -----	153.4	65.3	New Jersey -----	38.4	12.4
Michigan -----	43.1	14.3	New York -----	162.6	35.6
Minnesota -----	41.3	17.4	North Carolina -----	19.7	
Missouri -----	70.2	29.4	Ohio -----	29.2	14.3
New Jersey -----	116.2	112.3	Pennsylvania -----	158.1	99.8
New York -----	263.8	141.5	Tennessee -----	2.7	(NA)
North Carolina -----	140.0	73.7	Texas -----	13.8	5.4
Ohio -----	23.5	10.8	Wisconsin -----	4.1	4.4
Oklahoma -----	6.0	(BB)	<b>38424, ELECTRONIC HEARING AIDS</b>		
Oregon -----	16.3	8.8	United States -----	109.2	58.1
Pennsylvania -----	84.6	52.1	Florida -----	3.0	(AA)
South Carolina -----	80.5	(CC)	Minnesota -----	66.8	23.3
Tennessee -----	23.5	16.5	<b>38431, DENTAL PROFESSIONAL EQUIPMENT AND SUPPLIES</b>		
Texas -----	192.5	36.0	United States -----	567.9	(NA)
Utah -----	137.4	(GG)	California -----	143.0	(NA)
Vermont -----	3.9	(BB)	Connecticut -----	5.6	(NA)
Washington -----	15.5	(BB)	Illinois -----	48.4	(NA)
Wisconsin -----	63.3	(GG)	Missouri -----	7.7	(NA)
<b>38412, HOSPITAL FURNITURE</b>			New York -----	46.8	(NA)
United States -----	270.0	206.7	Ohio -----	11.9	(NA)
California -----	18.9	16.9	Pennsylvania -----	36.9	(NA)
Illinois -----	20.0	7.6	Texas -----	5.8	(NA)
Indiana -----	24.9	(FF)	Virginia -----	2.6	(NA)
Minnesota -----	2.3	(NA)	Washington -----	7.6	(NA)
New Jersey -----	9.6	3.3	<b>38432, DENTAL LABORATORY EQUIPMENT AND SUPPLIES</b>		
Ohio -----	27.9	14.8	United States -----	268.8	(NA)
Pennsylvania -----	13.9	(FF)	California -----	17.1	(NA)
Wisconsin -----	23.8	16.9	Illinois -----	23.5	(NA)
<b>38421, SURGICAL APPLIANCES AND SUPPLIES</b>			Massachusetts -----	2.6	(NA)
United States -----	3 785.7	1 773.0	New Jersey -----	5.0	(NA)
Alabama -----	37.7	9.1	New York -----	103.8	(NA)
Arizona -----	54.3	(FF)	Ohio -----	7.0	(NA)
California -----	463.9	170.3	<b>38511, OPHTHALMIC FRONTS AND TEMPLES</b>		
Colorado -----	27.7	(AA)	United States -----	153.7	154.2
Connecticut -----	129.8	80.7	Massachusetts -----	32.6	26.8
Florida -----	52.9	23.5	New Jersey -----	19.3	16.8
Georgia -----	70.2	49.1	New York -----	41.5	48.4
Illinois -----	176.0	212.1	<b>38514, GLASS OPHTHALMIC FOCUS LENSES</b>		
Indiana -----	169.4	80.1	United States -----	155.1	132.6
Iowa -----	6.4	(AA)	Minnesota -----	39.7	(EE)
Kansas -----	2.7	9.1	<b>38515, PLASTICS OPHTHALMIC FOCUS LENSES</b>		
Maryland -----	6.0	2.7	United States -----	228.8	117.7
Massachusetts -----	65.4	25.1	California -----	31.8	2.4
Michigan -----	71.2	20.6	<b>38516, CONTACT LENSES</b>		
Minnesota -----	61.4	18.4	United States -----	115.3	73.8
Mississippi -----	40.8	(FF)	California -----	67.5	30.8
Missouri -----	45.4	44.6	<b>38517, MEDICAL, OPHTHAL., PHOTO. EQUIP.; CLOCKS</b>		
Nebraska -----	8.1	7.1	United States -----	228.8	117.7
New Jersey -----	518.5	228.9	California -----	31.8	2.4
New York -----	161.2	79.9			
North Carolina -----	126.1	27.5			
Ohio -----	218.5	77.1			
Oklahoma -----	6.9	3.2			
Pennsylvania -----	119.4	53.9			
Rhode Island -----	30.3	(EE)			
Tennessee -----	149.9	27.0			
Texas -----	392.3	(GG)			
Virginia -----	12.9	(CC)			
Washington -----	6.9	(CC)			
Wisconsin -----	88.6	40.0			

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
<b>38517, OPHTHALMIC GOODS, N.E.C.</b>			<b>38617, SENSITIZED FILM, PLATES, PAPER, AND CLOTH, EXCEPT SILVER HALIDE TYPE</b>		
United States -----	284.4	(NA)	United States -----	985.0	477.9
Illinois -----	7.6	(NA)	California -----	47.3	30.1
Massachusetts -----	94.9	(NA)	Illinois -----	84.7	43.0
Missouri -----	2.5	(NA)	Michigan -----	20.5	8.8
New Jersey -----	14.3	(NA)	New Jersey -----	44.2	26.4
New York -----	111.0	(NA)	New York -----	125.9	47.5
Pennsylvania -----	15.1	(NA)	Texas -----	14.1	(EE)
<b>38611, STILL PICTURE EQUIPMENT</b>			<b>38618, PREPARED PHOTOGRAPHIC CHEMICALS</b>		
United States -----	1 473.3	925.8	United States -----	966.8	634.3
California -----	31.7	14.5	California -----	96.8	26.6
Connecticut -----	12.5	(AA)	Illinois -----	42.9	11.0
Illinois -----	56.5	78.9	Massachusetts -----	31.1	(AA)
Minnesota -----	130.5	38.6	New Jersey -----	59.6	81.2
New Jersey -----	89.7	60.7	Pennsylvania -----	13.2	9.4
Ohio -----	6.7	4.7			
Wisconsin -----	9.6	(CC)			
<b>38612, PHOTOCOPYING EQUIPMENT</b>			<b>38732, CLOCKS, TIMING MECHANISMS, TIME SWITCHES, AND CLOCK PARTS</b>		
United States -----	(D)	(D)	United States -----	475.1	(NA)
California -----	41.9	(FF)	Alabama -----	64.7	(NA)
Connecticut -----	69.9	(NA)	California -----	8.4	(NA)
			Connecticut -----	27.0	(NA)
			Illinois -----	48.5	(NA)
			Massachusetts -----	39.8	(NA)
			Michigan -----	55.2	(NA)
			Mississippi -----	35.2	(NA)
			New Jersey -----	10.7	(NA)
			North Carolina -----	24.7	(NA)
			Pennsylvania -----	10.5	(NA)
<b>38613, MOTION PICTURE EQUIPMENT</b>			<b>38734, WATCHES WITH IMPORTED MOVEMENTS OR MODULES</b>		
United States -----	203.2	178.2	United States -----	457.9	300.7
California -----	93.5	27.5	New York -----	111.9	152.1
Connecticut -----	3.4	(BB)			
Illinois -----	32.0	(GG)			
New Jersey -----	5.4	(AA)			
New York -----	27.2	62.7			
<b>38614, MICROFILMING, BLUEPRINTING, AND WHITEPRINTING EQUIPMENT</b>			<b>38736, WATCHES WITH DOMESTIC MOVEMENTS OR MODULES</b>		
United States -----	466.0	240.2	United States -----	58.4	(NA)
California -----	87.7	29.1	New York -----	7.6	(NA)
Wisconsin -----	44.5	39.9			
<b>38615, SENSITIZED FILM AND PLATES, SILVER HALIDE TYPE</b>			<b>38737, WATCHCASES AND PARTS FOR WATCHCASES</b>		
United States -----	4 154.7	2 587.3	United States -----	70.5	67.2
California -----	46.5	31.4	New York -----	35.5	39.9

Note: For 1977, the following value ranges (in million dollars) substitute for actual figures withheld to avoid disclosing data for individual companies: AA—less than \$2.0 but not 0; BB—\$2.0 to \$4.9; CC—\$5.0 to \$9.9; EE—\$10.0 to \$19.9; FF—\$20.0 to \$49.9; GG—\$50.0 or more.

Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Product class	1982	1981 <sup>1</sup>	1980 <sup>1</sup>	1979 <sup>1</sup>	1978 <sup>1</sup>	1977	1972	1967
									1967
3841-	<b>Surgical and medical instruments</b>	<b>4 271.9</b>	<b>3 257.2</b>	<b>2 769.7</b>	<b>2 431.7</b>	<b>2 256.2</b>	<b>1 891.3</b>	<b>984.2</b>	<b>542.9</b>
38411	Surgical and medical instruments and apparatus	3 686.1	2 770.0	2 395.8	2 104.4	1 947.7	1 506.7	984.2	542.9
38412	Hospital furniture	270.0	249.8	237.5	216.4	208.6	206.7		
38410	Surgical and medical instruments, n.s.k.	315.8	237.4	136.3	110.9	99.9	177.9		
3842-	<b>Surgical appliances and supplies</b>	<b>5 018.8</b>	<b>4 225.5</b>	<b>3 415.2</b>	<b>3 016.5</b>	<b>2 716.6</b>	<b>2 413.0</b>	<b>1 142.1</b>	<b>691.3</b>
38421	Surgical appliances and supplies	3 785.7	3 186.5	2 571.9	2 241.8	2 021.7	1 773.0	782.0	475.0
38423	Personal industrial safety devices	874.2	677.7	575.9	519.9	447.0	403.1	226.0	144.4
38424	Electronic hearing aids	109.2	95.4	78.0	72.9	60.1	58.1	50.0	40.9
38420	Surgical appliances and supplies, n.s.k.	249.5	265.9	189.3	181.9	187.8	178.8	84.1	31.1
3843-	<b>Dental equipment and supplies</b>	<b>957.0</b>	<b>1 128.3</b>	<b>1 082.1</b>	<b>931.0</b>	<b>767.1</b>	<b>660.7</b>	<b>352.3</b>	<b>201.8</b>
38431	Dental professional equipment and supplies	567.9							
38432	Dental laboratory equipment and supplies	268.8	1 128.3	1 082.1	931.0	767.1	660.7	352.3	201.8
38430	Dental equipment and supplies, n.s.k.	120.4							
3851-	<b>Ophthalmic goods</b>	<b>1 081.1</b>	<b>1 099.7</b>	<b>1 050.7</b>	<b>951.1</b>	<b>1 024.7</b>	<b>844.3</b>	<b>483.5</b>	<b>377.5</b>
38511	Ophthalmic fronts and temples	153.7	183.9	182.8	176.2	168.6	154.2	111.5	84.2
38514	Glass ophthalmic focus lenses	155.1	187.4	180.2	151.4	141.9	132.6		
38515	Plastics ophthalmic focus lenses	115.3	115.8	108.7	90.7	89.9	73.8		
38516	Contact lenses	228.8	210.2	192.4	178.4	147.6	117.7		
38517	Ophthalmic goods, n.e.c.	284.4	289.3	290.6	274.4	289.2	259.3	194.8	124.3
38510	Ophthalmic goods, n.s.k.	143.8	113.2	96.1	80.0	187.5	106.7	42.7	34.8
3861-	<b>Photographic equipment and supplies</b>	<b>14 990.4</b>	<b>14 976.9</b>	<b>13 970.3</b>	<b>11 920.3</b>	<b>10 622.7</b>	<b>9 217.5</b>	<b>5 255.4</b>	<b>3 138.0</b>
38611	Still picture equipment	1 473.3	1 219.5	1 197.9	1 184.8	1 094.5	925.8	616.5	484.8
38612	Photocopying equipment								
38613	Motion picture equipment	203.2	211.6	251.4	244.8			1 455.1	602.2
38614	Microfilming, blueprinting, and whiteprinting equipment	466.0	458.3	391.4	396.5	281.1	240.2	191.6	194.3
38615	Sensitized film and plates, silver halide type	4 154.7	4 265.6	3 866.6	3 364.5	3 062.2	2 587.3	1 427.6	53.6
38616	Sensitized paper and cloth, silver halide type								
38617	Sensitized film, plates, paper, and cloth, except silver halide type	985.0	872.8	744.2	693.9	594.5	443.1	306.2	193.5
38618	Prepared photographic chemicals	966.8	971.3	984.2	743.7	623.8	634.3	286.2	148.3
38619	X-ray film and plates								
38610	Photographic equipment and supplies, n.s.k.								
3873-	<b>Watches, clocks, and watchcases</b>	<b>1 121.8</b>	<b>1 330.0</b>	<b>1 298.4</b>	<b>1 353.9</b>	<b>1 529.2</b>	<b>1 332.0</b>	<b>880.8</b>	<b>708.3</b>
38732	Clocks, timing mechanisms, time switches, and clock parts	475.1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
38734	Watches with imported movements or modules	457.9	476.8	389.0	369.9	383.6	300.7	192.1	190.6
38736	Watches with domestic movements or modules	58.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
38737	Watchcases and parts for watchcases	70.5	68.0	91.6	85.2	81.7	67.2	52.9	44.8
38730	Watches, clocks, and watchcases, n.s.k.	60.0	81.2	55.6	56.3	67.7	59.8	20.7	31.8

<sup>1</sup>Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

Table 7. Materials Consumed by Kind: 1982 and 1977

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS</b>					
	<b>Materials, parts, containers, and supplies</b>				
207431	Cotton linters (net weight)	(X)	1 085.5	(X)	537.9
221101	Cotton broad woven fabrics (piece goods)	(S)	1.7	(S)	(3)
220149	Other broad woven fabrics (piece goods)	(S)	6.3	(S)	.8
229710	Nonwoven fabric	(S)	5.2	(S)	.7
260003	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard	1,000 s tons	(S)	55.1	(S)
265001	Paperboard boxes, containers, and corrugated paperboard	do	(S)	42.9	(S)
282104	Plastics resins, consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	mil lb	(S)	70.2	(S)
289100	Adhesives and sealants	do	(S)	3.1	(S)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets		(X)	64.7	(X)
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes		(X)	141.0	(X)
320103	Glass and glass products, except photographic and projection lenses and prisms		(X)	11.7	(X)
331002	Steel mill shapes and forms, except castings and forgings		(X)	44.4	(X)
332001	Iron and steel castings	1,000 s tons	(S)	11.1	(3)
346200	Iron and steel forgings	do	(S)	4.2	(3)
335002	Nonferrous metal mill shapes and forms	do	(S)	20.2	(S)
345001	Bolts, nuts, screws, rivets, and screw machine products		(X)	15.0	(X)
367001	Resistors, capacitors, transformers, transducers, and other electronic-type components, except electron tubes and semiconductors		(X)	42.0	(X)
367408	Semiconductors		(X)	7.0	(X)
384001	Surgical and orthopedic supplies (including sutures and hypodermic needles for further manufacture)		(X)	86.6	(X)
970099	All other materials and components, parts, containers, and supplies		(X)	250.4	(X)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>		(X)	202.7	(X)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977		
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)	
<b>INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES</b>						
Materials, parts, containers, and supplies						
207431	Cotton linters (net weight) mil lb	(X)	1 880.1	(X)	854.7	
221101	Cotton broad woven fabrics (piece goods) mil lin yd	(S)	18.5	*22.0	11.1	
220149	Other broad woven fabrics (piece goods) do	(S)	133.9	(S)	28.3	
229710	Nonwoven fabric mil sq yd	(S)	68.2	(S)	62.4	
260003	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard 1,000 s tons	**436.6	85.2	(S)	62.0	
265001	Paperboard boxes, containers, and corrugated paperboard do	(S)	58.2	(S)	25.9	
282104	Plastics resins, consumed in the form of granules, pellets, powders, liquids, etc. but excluding sheets, rods, tubes, and shapes mil lb	(S)	45.0	(S)	27.9	
289100	Adhesives and sealants do	(S)	43.0	(S)	15.4	
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(S)	30.0	(X)	(*)	
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	24.3	(X)	24.5	
320103	Glass and glass products, except photographic and projection lenses and prisms	(X)	84.2	(X)	33.1	
331002	Steel mill shapes and forms, except castings and forgings	(X)	8.4	(X)	13.6	
332001	Iron and steel castings 1,000 s tons	(S)	31.5	(X)	31.7	
346200	Iron and steel forgings do	(S)	17.3	(X)	(*)	
335002	Nonferrous metal mill shapes and forms do	(S)	8.4	(X)	(*)	
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	29.1	(S)	5.0	
367001	Resistors, capacitors, transformers, transducers, and other electronic-type components, except electron tubes and semiconductors	(X)	8.6	(X)	5.6	
367408	Semiconductors	(X)	52.2	(X)	16.4	
384001	Surgical and orthopedic supplies (including sutures and hypodermic needles for further manufacture)	(X)	1.8	(X)	.8	
970099	All other materials and components, parts, containers, and supplies consumed	(X)	93.1	(X)	(*)	
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	483.5	(X)	*346.8	
			555.7	(X)	144.2	
<b>INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES</b>						
Materials, parts, containers, and supplies						
260003	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard 1,000 s tons	(X)	392.2	(X)	284.6	
265001	Paperboard boxes, containers, and corrugated paperboard do	(S)	2.4	*.3	.8	
282104	Plastics resins, consumed in the form of granules, pellets, powders, liquids, etc. but excluding sheets, rods, tubes, and shapes mil lb	(S)	6.6	(S)	3.3	
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	3.3	(S)	1.8	
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	2.4	(X)	.6	
320103	Glass and glass products, except photographic and projection lenses and prisms	(X)	7.5	(X)	4.4	
331002	Steel mill shapes and forms, except castings and forgings	(X)	3.4	(X)	1.7	
335002	Nonferrous metal mill shapes and forms 1,000 s tons	(S)	20.5	(X)	5.0	
333903	Precious metals (gold, platinum, silver, etc.), all forms, including ingot, sheet, strip, solder, plating, electrodes, etc. 1,000 troy oz	(S)	5.5	**4.8	9.7	
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	137.6	(X)	(5)	
367001	Resistors, capacitors, transformers, transducers, and other electronic-type components, except electron tubes and semiconductors	(X)	3.2	(X)	5.1	
367408	Semiconductors millions	(X)	.6	9.4	9.6	
970099	All other materials and components, parts, containers, and supplies consumed	(S)	114.2	(X)	*182.3	
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	76.2	(X)	60.3	
<b>INDUSTRY 3851, OPHTHALMIC GOODS</b>						
Materials, parts, containers, and supplies						
265001	Paperboard containers, boxes, and corrugated paperboard 1,000 s tons	(X)	305.5	(X)	262.2	
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. but excluding sheets, rods, tubes, and shapes mil lb	(S)	7.3	(X)	(6)	
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	**7.3	20.2	(S)	16.5	
383201	Lenses and prisms for optical instruments, sighting and fire control equipment millions	(X)	29.3	(X)	32.9	
322941	Lens blanks, optical and ophthalmic do	(S)	16.7	(D)	(D)	
322901	Other optical glass	*53.7	74.6	(S)	54.4	
333903	Precious metals, all forms, including ingot, sheet, strip, solder, plating, electrodes, etc. mil lb	(X)	1.1	(X)	6.8	
367001	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except electron tubes and semiconductors	(D)	(D)	(S)	9.7	
367408	Semiconductors millions	(X)	(D)	(X)	(D)	
970099	All other materials and components, parts, containers, and supplies	(D)	76.9	(D)	(D)	
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	79.4	(X)	*91.5	
					49.9	

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text.]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
	<b>INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES</b>				
	Materials, parts, containers, and supplies	(X)	4 997.1	(X)	2 857.5
260004	Paper and paperboard products, except paperboard boxes, containers, corrugated paperboard, and photographic base papers	(X)	103.8	(X)	75.6
262104	Photographic base papers	(X)	88.0	(X)	101.7
265001	Paperboard boxes, containers, and corrugated cardboard	(X)	77.7	(X)	47.5
281903	Inorganic chemicals, n.e.c. (except silver nitrate and prepared photographic chemicals)	(X)	71.2	(X)	44.7
281997	Silver nitrate	59.1	458.5	*56.9	162.7
286902	Synthetic organic chemicals, except prepared photographic chemicals	(X)	103.2	(X)	59.0
289945	Gelatin, photographic grade	(X)	24.1	(X)	16.2
386180	Prepared photographic chemicals	(X)	64.6	(X)	42.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	(mil lb)	(S)	97.8	*100.5
307911	Unsupported plastics film and sheet for photographic, mimeographic, X-ray use, etc.	(X)	168.0	(X)	(?)
307913	Unsupported plastics rods, shapes, tubes, and profiles	(X)	65.6	(X)	(?)
307901	Other plastics products	(X)	58.4	(X)	(?)
	Mill shapes and forms, except castings and forgings:				
331001	Carbon steel	1,000 s tons	16.8	16.1	31.6
331020	Alloy steel, except stainless	do	(S)	8.0	(S)
	Stainless steel:				
331033	Sheet and strip	do	(S)	10.0	(S)
331050	All other stainless steel mill shapes and forms	do	(S)	7.8	(S)
335105	Copper and copper-base alloy	(mil lb)	(S)	9.7	(S)
335001	Aluminum and aluminum-base alloy	do	*34.1	59.4	(S)
336100	Aluminum and aluminum-base alloy castings:				
	Purchased	do	(S)	44.8	(S)
	Produced and consumed	do	(S)	(X)	(X)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	24.6	(X)	20.3
346901	Metal stampings	1,000 s tons	(S)	82.3	(X)
356601	Speed changers, gears, and industrial high-speed drivers	(X)	5.4	(X)	10.9
362110	Fractional horsepower electric motors (less than 1 hp):				
	Timing motors, synchronous and subsynchronous:				
	Purchased	millions	(S)	28.7	(S)
	Produced and consumed	do	(S)	(X)	(X)
362115	Other fractional horsepower motors, excluding timing motors:				
	Purchased	do	(S)	31.0	*1.3
	Produced and consumed	do	(S)	(X)	(S)
364101	Electric lamp bulbs	(X)	12.2	(X)	9.7
367010	Electron tubes, except X-ray	(X)	1.2	(X)	(?)
367408	Semiconductors	(X)	31.4	(X)	22.3
367501	Capacitors for electronic circuitry	(X)	11.1	(X)	(?)
367601	Resistors for electronic circuitry	(X)	(?)	(X)	(?)
367700	Coils, transformers, reactors, and chokes for electronic circuitry	(X)	12.7	(X)	(?)
367800	Connectors for electronic circuitry	(X)	7.8	(X)	(?)
383211	Photographic and projection lenses and prisms	(X)	17.2	(X)	26.3
386101	Light sensitive film and papers	(X)	269.5	(X)	(?)
386104	Photographic equipment and supplies (shutters, range finders, light meters, etc.), excluding film and chemicals	(X)	7.2	(X)	(?)
970099	All other materials and components, parts, containers, and supplies consumed	(X)	82 522.3	(X)	71 887.6
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	395.8	(X)	163.9
	<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES</b>				
	Materials, parts, containers, and supplies	(X)	632.5	(X)	803.6
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	5.2	(X)	10.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes	(mil lb)	(S)	5.3	*13.0
307902	Fabricated plastics products, except gaskets (including face crystals)	(X)	(D)	(X)	16.7
320164	Glass and glass products (including face crystals)	(X)	(X)	(X)	(?)
331002	Steel mill shapes and forms, except castings and forgings	1,000 s tons	(X)	1.4	6.8
333903	Precious metals, all forms (including ingot, sheet, strip, solder, plating electrodes etc.)	1,000 troy oz	*24.3	9.0	(?)
335105	Copper and copper-base alloy mill shapes and forms, except castings	(mil lb)	** 9	1.5	2.7
335609	Nonferrous metal mill shapes and forms, except copper and aluminum	1,000 s tons	(S)	.6	*.4
335770	Magnet wire	(mil lb)	(D)	(D)	**1.4
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	(X)	(X)	8.2	(X)
362110	Fractional horsepower electric motors:				
	Timing motors, synchronous and subsynchronous:				
	Purchased	millions	(D)	(D)	(10)
	Produced and consumed	do	(D)	(X)	(S)
362115	Other fractional horsepower electric motors:				
	Purchased	do	(D)	(D)	105.4
	Produced and consumed	do	(D)	(X)	(S)
367400	Transistors, diodes, and rectifiers	(D)	(D)	(D)	104.2
367411	Integrated circuits	(D)	(D)	(S)	(X)
367905	Quartz crystals	(D)	(D)	(S)	2.8
369201	Batteries, primary	(X)	(X)	(D)	24.7
		(X)	(X)	(X)	(?)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text.]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
	<b>INDUSTRY 3873, WATCHES, CLOCKS, AND WATCHCASES—Con.</b>				
387371	Watchcases:				
	Precious metal:				
	Purchased ----- millions	**1.4	38.9	3.0	25.1
	Produced and consumed ----- do	-	(X)	(S)	(X)
387372	Base metal:				
	Purchased ----- do	1.5	27.8	(11)	(11)
	Produced and consumed ----- do	-	(X)	(S)	(X)
387373	Other, including plastics:				
	Purchased ----- do	(S)	.2	1114.0	1127.8
	Produced and consumed ----- do	-	(X)	(S)	(X)
387341	Imported watch movements and modules:				
387342	With balance wheel and hairspring ----- do	21.0	223.1	*9.0	100.8
387353	Without balance wheel and hairspring ----- do			3.3	41.7
	Watch parts, including dials, hands, displays, numerals, etc., except imported watch movements -----				
970099	All other materials and components, parts, containers, and supplies -----				
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup> -----				
		(X)	189.1	(X)	*265.1
		(X)	68.6	(X)	64.3

<sup>1</sup>For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>2</sup>Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

<sup>3</sup>For 1977, material codes 207431, 289100, 332001, 346200, and 384001 were included in code 970099.

<sup>4</sup>For 1977, material codes 289100, 332001, 346200, and 384001 were included with code 970099.

<sup>5</sup>For 1977, material code 333903 was included with code 970099.

<sup>6</sup>For 1977, material code 265001 was included with code 970099.

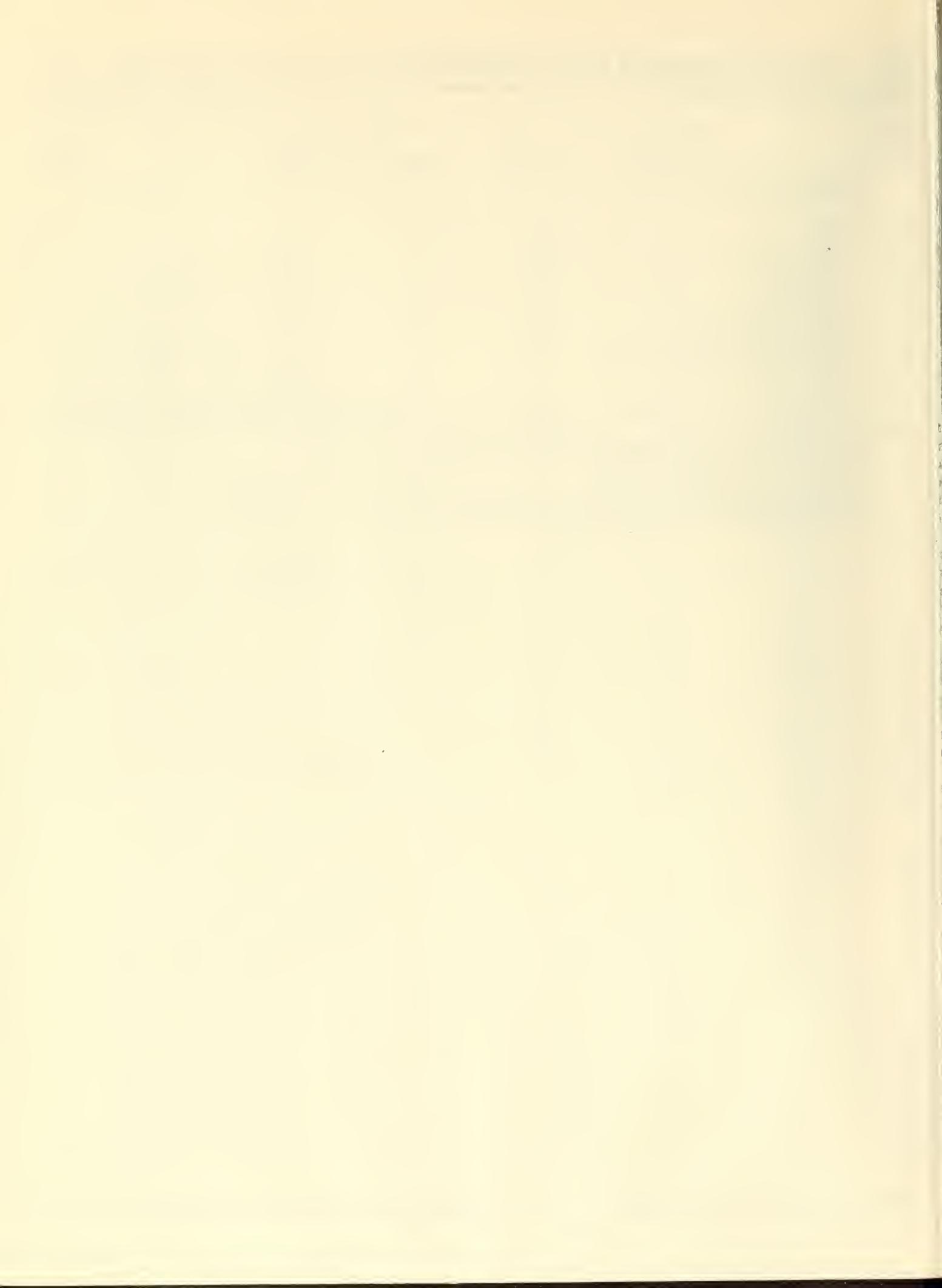
<sup>7</sup>For 1977, material codes 307911, 307913, 307901, 367010, 367501, 367601, 367700, 367800, 386101, and 386104 were included in code 970099.

<sup>8</sup>For 1982, material code 367601 is combined with material code 970099 to avoid disclosing data for individual companies.

<sup>9</sup>For 1977, material codes 320164, 333903, 367905, and 369201 were included with code 970099.

<sup>10</sup>For 1977, material code 362110 was combined with material code 362115.

<sup>11</sup>For 1977, material code 387372 was combined with material code 387373.



# APPENDIX A.

## Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

### SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

**Number of establishments and companies**—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

**Employment and related items**—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

**All employees**—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

**Production workers**—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

**All other employees**—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

**Payrolls**—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers

of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

**Production-worker hours**—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

**Cost of materials**—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

**Specific materials consumed**—In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

**Value of shipments**—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further

processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

**Individual products**—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

**Classes of products**—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the

individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

**Duplication in cost of materials and value of shipments**—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

**Value added by manufacture**—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

**New and used capital expenditures**—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under

contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

**End-of-year inventories**—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw

materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

**Specialization and coverage ratios**—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary

products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

## SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

**Supplemental labor costs**—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

**Cost of purchased services**—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the

specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

**Electric energy used for heat and power**—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

**Beginning- and end-of-year depreciable assets**—The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are non-depreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

**New and used capital expenditures**—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

**Breakdown of new capital expenditures for machinery and equipment**—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

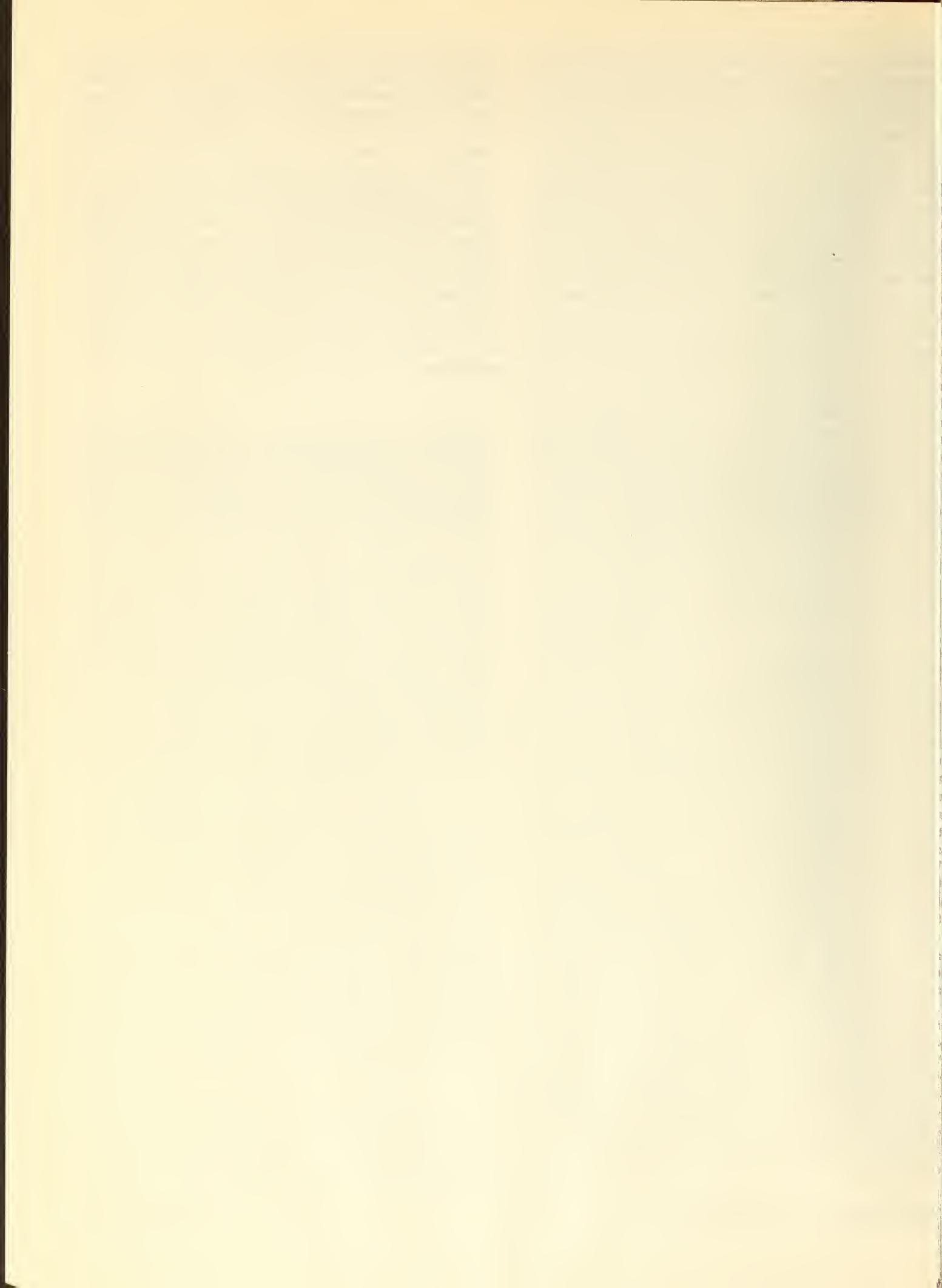
**Retirements**—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

**Rental payments**—This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

**Depreciation charges**—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.



## APPENDIX B.

# Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

### DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the current panel.

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the

historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

### DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industrial Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear

estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

## QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

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<input type="checkbox"/> Service Industries	<input type="checkbox"/> Minority- and Women-Owned Businesses	<input type="checkbox"/> Population
<input type="checkbox"/> Construction Industries	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Housing
<input type="checkbox"/> Manufacturing	<input type="checkbox"/> County Business Patterns	<input type="checkbox"/> International Statistics
<input type="checkbox"/> Mineral Industries	<input type="checkbox"/> Quarterly Financial Report	<input type="checkbox"/> Geography
<input type="checkbox"/> Transportation		<input type="checkbox"/> Guides, Catalogs, etc.

Name

Organization

Address/PO Box

City

State

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Bureau of the Census  
Washington, D.C. 20233**



# PUBLICATION PROGRAM

## 1982 CENSUS OF MANUFACTURES

Publications of the 1982 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233

### Preliminary Reports

Preliminary industry data are issued in 443 separate reports covering 452 industries (or combinations of industries). Preliminary data for States are grouped and released in reports for each of the nine census geographic divisions.

### Final Reports

Final detailed statistics are issued in separate paperbound reports.

#### Industry series—82 reports (MC82-I-20A to -39D)

Each of the 82 reports provides information for a group of related industries (e.g., "dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 452 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment and degree of primary product specialization. Statistics are given on production of specific products and consumption of energy and various materials by industry.

#### Geographic area series—51 reports (MC82-A-1 to -51)

A separate report for each State and the District of Columbia presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, SMSA's, and large industrial counties and places. Comparative statistics for earlier census years are shown for the State and large SMSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics—including inventories, assets, rents, and energy costs—are presented only in statewide totals.

#### Subject series—10 reports (MC82-S-1 to -10)

Each of the 10 reports contains detailed statistics for an individual subject, such as: selected materials consumed, selected metalworking

operations, manufacturing activity in government establishments, concentration ratios in manufacturing, type of organization, water use in manufacturing, fuels and electric energy consumed (separate publications for industry statistics, and State and SMSA statistics), textile machinery in place, production indexes, and a general National-level summary.

### Final Report Volumes

Final paperbound reports subsequently are assembled and reissued in clothbound volumes.

- Volume I. Summary and Subject Statistics—data previously issued in series MC82-S.
- Volume II. Industry Statistics—data previously issued in series MC82-I.

Part 1. Major Groups 20 to 26  
Part 2. Major Groups 27 to 34  
Part 3. Major Groups 35 to 39

- Volume III. Geographic Area Statistics—data previously issued in series MC82-A.

Part 1. Alabama to Montana  
Part 2. Nebraska to Wyoming

### Microfiche

All published data also are available on microfiche.

### Computer Tapes

Selected data—generally detailed information by industry and/or geographic area—also are available on public-use computer tapes. For the selected data, these tapes will provide the same information found in the final reports. Public-use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data. These tapes, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

## OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U. S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.

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